

## Emergency Actions due to Insufficient Flow for Specific Fisheries in Tributaries to the Russian River

March 14, 2016

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In Title 23, Division 3, Chapter 2, amend the title of Article 24, and add section 876 to read:

### **Article 24. Curtailment of Diversions and Other Actions Based on Insufficient Flow to Meet All Needs**

#### **§ 875 [reserved]**

#### **§ 876 [reserved]Emergency Enhanced Water Conservation and Additional Water User Information for the Protection of Specific Fisheries in Tributaries to the Russian River**

(a) [reserved]

(b) [reserved]

~~The State Water Resources Control Board (State Board) has determined that it is a waste and unreasonable use of water under Article X, section 2 of the California Constitution to divert or use water sourced from within the watersheds listed in subdivision (c) in a manner inconsistent with subdivision (d) during the current drought emergency, regardless of water right seniority, given limited available supply and the need for the water to support other more critical uses.~~

~~(a) For the purposes of this section:~~

~~(1) "Untreated rainwater or gray water" means all untreated rainwater collected in a runoff capture system or any water meeting the definition in Health and Safety Code section 17922.12.~~

~~(2) "Ornamental turf" means all turf other than turf used for community recreation by education facilities, recreation-related business, non-profit organizations, or recreational facilities, including but not limited to sports fields and playgrounds, that are generally accessible to the public.~~

~~(3) "Landscapes" includes all plantings besides ornamental turf, including but not limited to trees, annual plants, perennial plants, and edible plants, but does not include agricultural commodities meeting the definition of Government Code section 51201, subdivision (a).~~

~~(b) For the protection of threatened and endangered fish, all water users who receive water from diversions sourced within the watersheds designated in subdivision (c) shall comply with subdivision (d). To better assess impacts on surface stream stage and flow, all landowners in, or suppliers of water from, the watersheds designated in subdivision (c) shall comply with subdivision (e).~~

~~(c)(4) The State Water Resources Control Board (State Board) has authority to ensure the protection and preservation of streams and to limit diversions to protect critical flows for species, including for state- and federally- threatened and endangered salmon and~~

steelhead species. The following watersheds have been identified as critical rearing habitat for juvenile state- and federally-listed Central California Coast coho salmon (CCC coho salmon) and Central California Coast steelhead (CCC steelhead). ~~All landowners and water users within the following watersheds and the use of said water shall be subject to this section.~~

- (1A) The portion of the Mark West Creek watershed as defined by the United States Geological Survey- Watershed Boundary Dataset- Hydrologic Unit Code 180101100706. Mark West Creek enters the Russian River from the south at river mile 31, along the northern border of Forestville. This portion of the Mark West Creek watershed spans approximately 57 square miles.
- (2B) Mill Creek. Mill Creek is a tributary to Dry Creek, which enters the Russian River from the west at river mile 42, approximately one mile south of Healdsburg. The Mill Creek watershed spans approximately 23 square miles.
- (3C) Green Valley Creek. Green Valley Creek enters the Russian River from the south at river mile 29, along the northwestern border of Forestville. The Green Valley Creek watershed spans approximately 38 square miles.
- (4D) Dutch Bill Creek. Dutch Bill Creek enters the Russian River from the south at river mile 13, within the town of Monte Rio. The Dutch Bill Creek watershed spans approximately 12 square miles.

~~(2) The State Board recognizes that the upper portion of each of the watersheds listed in (c)(1) is the most critical for mid- to late-summer rearing of state and federally threatened and endangered salmon and steelhead species. These upper portions are defined as:~~

- ~~—(A) On Mark West Creek, the portion of the watershed upstream of the confluence with an unnamed tributary (the tributary flowing parallel to western Riebli Road) as defined by the Latitude/Longitude of 38.5066°N and 122.72607°W.~~
- ~~—(B) On Mill Creek, the portion of the watershed upstream of the confluence with Felta Creek, and including Felta Creek, as defined by the Latitude/Longitude of 38.58098°N and 122.88306°W.~~
- ~~—(C) On Green Valley Creek, the portion of the watershed upstream of the confluence with Atascadero Creek as defined by the Latitude/Longitude of 38.44841°N and 122.88697°W.~~
- ~~—(D) On Dutch Bill Creek, the portion of the watershed upstream of the confluence with Tyrone Gulch as defined by the Latitude/Longitude of 38.44776°N and 122.99979°W.~~

(d) [reserved] ~~(1) The use of potable and non-potable water sourced from areas identified in accordance with subdivision (d)(3) is prohibited for any of the following actions, except where necessary to address an immediate health and safety need or where used exclusively for irrigation for commercial agricultural use meeting the definition of Government Code section 51201, subdivision (b):~~

- ~~—(A) The application of water, except untreated rainwater or gray water, to~~

ornamental turf;

- ~~(B) The application of water to landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures;~~
  - ~~(C) The application of water, except untreated rainwater or gray water, to landscapes more than two days per week;~~
  - ~~(D) The application of water, except untreated rainwater or gray water, to landscapes between the hours of 8:00a.m. to 8:00p.m.;~~
  - ~~(E) Washing motor vehicles, except with untreated rainwater or gray water or at car wash facilities where the water is part of a recirculating system;~~
  - ~~(F) The application of water to driveways and sidewalks;~~
  - ~~(G) The use of water, except untreated rainwater or gray water, to fill or refill decorative ponds, fountains and other decorative water features;~~
  - ~~(H) The use of water, except untreated rainwater or gray water, in a fountain or other decorative water feature, except where the water is part of a recirculating system; and~~
  - ~~(I) The application of water to landscapes during and within 48 hours after measurable rainfall.~~
- ~~(2) To prevent the waste and unreasonable use of water and to promote water conservation, operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily, if daily laundering is offered. The hotel or motel shall prominently display and/or communicate notice of this option to each guest using clear and easily understood language.~~
- ~~(3) The conservation measures identified in subdivisions (d)(1) and (d)(2) shall take effect immediately for all water users who receive water from diversions, whether surface or subsurface, sourced from within the watersheds designated in subdivision (c)(2). The Deputy Director for the Division of Water Rights (Deputy Director), after consultation with the California Department of Fish and Wildlife (CDFW) or the National Marine Fisheries Service (NMFS), may extend those requirements to some or all of the remainder of each tributary watershed identified in subdivision (c) to support CCC steelhead and CCC coho salmon passage this migratory season. The Deputy Director may, after consultation with CDFW or NMFS, lift the conservation measures identified in subdivisions (d)(1) and (d)(2) for all or any portion of the watersheds listed in subdivision (c), based on availability of sufficient streamflow in the tributaries to protect CCC coho salmon and CCC steelhead.~~
- ~~(4) Subdivision (d) shall not place additional restrictions on a party who participates in a voluntary drought initiative program (program) determined by CDFW or NMFS to be at least equivalent to the conservation measures in subdivisions (d)(1) and (d)(2), so long as the party fully complies with the terms and conditions of the program. CDFW or NMFS must provide the Division of Water Rights with a copy of the program and a list of all parties included in the program to confirm participation. Participation in such a program shall not affect any other obligations to implement conservation practices, comply with informational orders, curtail diversions, or comply with other requirements or prohibitions not based on subdivision (d).~~

- ~~(5) The conservation measures required by subdivision (d) do not supersede or affect other conservation requirements for water suppliers, or individual end users.~~
- ~~(6) The taking of any action prohibited in subdivisions (d)(1) or failure to take the action required by subdivision (d)(2) is an infraction, punishable by a fine of up to five hundred dollars (\$500) for each day in which the violation occurs. The fine for the infraction is in addition to, and does not supersede or limit, any other remedies, civil or criminal, including civil liability pursuant to Water Code section 1846.~~
- (e) Due to the known hydraulic connection between sub-surface water and surface streams in the Russian River watershed, as well as the limited water use information in the area, additional information on diversions, whether surface or subsurface, and use of water is needed to better assess impacts on surface stream flows. The Deputy Director for the Division of Water Rights (Deputy Director) may issue informational orders to some or all landowners in, or suppliers of water from, the watersheds identified in subdivision (c)~~(4)~~, requiring them to provide additional information related to diversion and use of water, including but not limited to the: date of first use, location of diversion, type of diversion, types of beneficial uses, distance of well from the nearest surface stream, depth of the well, well screen interval(s), place of use, estimated 2014 diversion amount, estimated 2014 use amount, source of water, volume of storage, estimated pumping/diversion rate, amount of water anticipated to be needed this year, or any other information relevant to forecasting use and impacts to the surface streams in the current drought year or in contingency planning for continuation of the existing drought emergency. Any party receiving an order under this subdivision shall provide the requested information within 30 days. The Deputy Director may grant additional time for the submission of information regarding diversion and use of water upon substantial compliance with the 30-day deadline and a showing of good cause.
- (1) Each landowner is responsible for immediately providing notice of any informational order(s) to all water users associated with the parcel of land related to the informational order.
- (2) The failure to provide the information requested within 30 days or any additional time extension granted, is a violation subject to civil liability of up to \$500 per day for each day the violation continues pursuant to Water Code section 1846.
- (f) New Diversions. For purposes of this subdivision, a new diversion means a surface or subsurface diversion initiated after issuance of a watershed-wide informational order to landowners in the watershed in which the new diversion is located. The owner of any new diversion must submit to the Deputy Director any information required by a watershed-wide informational order issued under subdivision (e) prior to commencement of the new diversion, unless the Deputy Director approves commencement of the diversion based on substantial compliance.
- (g) The State Board has established an email distribution list that landowners or others may join to receive notices and updates regarding informational orders and conservation measures required per this section. Notice provided by email or by

posting on the State Board's webpage shall be sufficient for all purposes related to notices and updates regarding the provisions of this section.

Authority: Sections 1058, 1058.5, Water Code

Reference: Article X, Section 2, California Constitution; Sections 100, 102, 104, 105, 109, 174, 275, 1011, 1051, 1052, 1058.5, Water Code; *Light v. State Water Resources Control Board* (2014) 226 Cal.App.4th 1463

## **Emergency Actions due to Insufficient Flow for Specific Fisheries in Tributaries to the Russian River**

March 14, 2016

### **EXECUTIVE SUMMARY**

This document provides supporting information for the proposed update and partial readoption of an emergency regulation for Additional Water User Information for the Protection of Specific Fisheries in Tributaries to the Russian River. On July 6, 2015, the State Water Resources Control Board (State Water Board) emergency regulation for [Enhanced Water Conservation and Additional Water User Information for the Protection of Specific Fisheries in Tributaries to the Russian River](#) went into effect for four Russian River tributary watersheds: Dutch Bill Creek; Green Valley Creek; portions of Mark West Creek; and Mill Creek. The existing regulation will expire on April 1, 2016. The existing emergency regulation is comprised of two main components: (1) requiring water users in the upper portion of each watershed to implement enhanced water conservation measures; and (2) informational order authority to require landowners and water suppliers in the watershed to provide information on their diversion and use of water when requested by the State Water Board Deputy Director for the Division of Water Rights (Deputy Director).

At this time, the State Water Board proposes readoption only of the informational order component of the 2015 regulation, with minor updates for clarity. The enhanced water conservation component of the emergency regulation is not proposed for readoption at this time due to improved hydrologic conditions resulting from increased precipitation so far this water year (October 1, 2015 – September 30, 2016). The State Water Board will continue to monitor hydrologic conditions and consult with the California Department of Fish and Wildlife (CDFW) regarding the need for enhanced conservation measures later this year.

The Central California Coast coho salmon (CCC coho salmon) are state- and federally-listed as endangered and the Central California Coast steelhead (CCC steelhead) are federally-listed as threatened. Dutch Bill Creek, Green Valley Creek, portions of Mark West Creek, and Mill Creek have been identified by CDFW and National Marine Fisheries Service (NMFS) as high priority tributaries that support key populations of CCC coho salmon and CCC steelhead and provide some of the highest quality spawning and rearing habitat in the Russian River watershed. Since being listed, CCC coho salmon populations have continued to decline, and NMFS and CDFW consider the Evolutionary Significant Unit (ESU) in serious danger of extinction. In May 2015, NMFS included the CCC coho salmon ESU in its “Species in the Spotlight” initiative, which highlights eight endangered species NMFS considers most at risk of extinction in the United States. Prompt action is needed to help protect CCC coho salmon and CCC steelhead populations in the Russian River watershed that have been imperiled by natural drought and human activities. Information provided by landowners and water suppliers will be used to better understand water diversion sources and locations, and will be used to develop potential drought management actions to improve streamflow-related habitat conditions. Submission of water source and use information (or clarification of previously submitted information) would be required for landowners and water suppliers, but additional fees or other water use restrictions are not included in this proposed regulation.

## FINDING OF EMERGENCY

The State Water Resources Control Board (State Water Board or Board) finds that an emergency exists due to severe drought conditions. Immediate action is needed to collect information to prevent the waste and unreasonable use of water diverted from priority water bodies that provide habitat for threatened and endangered species in light of limited water availability during the drought. The California Department of Fish and Wildlife (CDFW) and the National Marine Fisheries Service (NMFS) have identified the Dutch Bill Creek, Green Valley Creek, portions of Mark West Creek, and Mill Creek watersheds as high priority tributaries for the adoption of an emergency regulation to prevent the extirpation of Central California Coastal (CCC) coho salmon from the Russian River watershed. These four tributaries have also been identified as Coho Partnership Priority watersheds<sup>1</sup> (Obiedzinski and Nossaman, 2012). All four tributaries support CCC coho salmon and CCC steelhead populations, and do not contain major flow-regulating reservoirs. CCC coho salmon and CCC steelhead present in Dutch Bill Creek, Green Valley Creek, Mark West Creek, and Mill Creek are at risk of extirpation due to low flow conditions affecting multiple year-classes in this extended drought. CCC coho salmon populations tend to follow a three-year life cycle which typically results in three distinct year-classes. CCC coho salmon populations in Russian River tributaries have declined over the past several years of the current drought. This decline in CCC coho salmon populations is particularly concerning because each year-class has been negatively impacted by the ongoing drought.

On January 17, 2014, Governor Edmund G. Brown Jr. declared a drought state of emergency ([January 2014 Proclamation](#)). On April 25, 2014, the Governor issued a Proclamation of a Continued State of Emergency ([April 2014 Proclamation](#)) to strengthen the state's ability to manage water and habitat effectively in drought conditions. The April 2014 Proclamation orders that the provisions of the January 2014 Proclamation remain in full force and also adds several provisions. The April 2014 Proclamation suspends the California Environmental Quality Act (CEQA) to allow drought emergency regulations and other actions to take place as quickly as possible. On December 22, 2014, Governor Brown issued [Executive Order B-28-14](#), which extended the CEQA suspension for certain activities, including adoption of emergency regulations, through May 31, 2016.

On April 1, 2015, Governor Brown signed Executive Order B-29-15 ([April 2015 Order](#)), that recognizes the possibility that the current drought will stretch into a fifth straight year in 2016 and beyond, and that severe drought conditions have degraded habitat for many fish and wildlife species. The April 2015 Order also directs the State Water Board, amongst other things, to impose restrictions to achieve a statewide 25 percent reduction in potable urban water usage through February 2016, to increase enforcement of waste and unreasonable use violations, and to collect increased information from water users.

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<sup>1</sup>Coho Partnership Priority watersheds are streams where streamflow is known to limit coho survival and where a cooperative project(s) could provide opportunities for both salmon and water users.

On November 13, 2015, Governor Brown issued [Executive Order B-36-15](#), which extends the terms of previous drought declarations in light of the continuing drought, and the threat of continuance of the drought. Executive Order B-36-15 recognizes that the ongoing drought continues to stress California's fish and wildlife.

Due to the dry hydrologic conditions, the State Water Board issued Water Diversion Curtailment Notices in 2014 and Notices of Water Unavailability in 2015 to water right holders within some critically dry watersheds. The State Water Board may need to issue Notices of Water Unavailability in 2016 to water right holders within critically dry watersheds, if the dry trend continues.

On December 1, 2015, the State Water Board adopted an emergency regulation amending and readopting an existing drought [emergency regulation regarding informational orders](#) (California Code of Regulations, title 23, section 879, subdivision (c)). The emergency regulation became effective on December 17, 2015 upon approval by OAL. The State Water Board previously adopted emergency regulations regarding informational orders on [March 17, 2015](#) and [July 2, 2014](#).

On July 6, 2015, a State Water Board emergency regulation for [Enhanced Water Conservation and Additional Water User Information for the Protection of Specific Fisheries in Tributaries to the Russian River](#) took effect. (California Code of Regulations, title 23, section 876.) The emergency regulation covers the four Russian River tributary watersheds of Dutch Bill Creek, Green Valley Creek, portions of Mark West Creek, and Mill Creek. The emergency regulation requires enhanced water conservation in critical areas of the four tributary watersheds and submittal of information on water diversion and use when requested by the State Water Board Deputy Director for the Division of Water Rights (Deputy Director). On August 24, 2015, the Deputy Director issued [Order WR 2015-0026-DWR](#) requiring all landowners and water suppliers in the four watersheds (approximately 10,100 parties) to provide information on their sources and uses of water. Starting October 30, 2015, reminder letters were mailed to landowners and water suppliers who had not responded to Order WR 2015-0026-DWR. On December 15, 2015, Administrative Civil Liability Complaints were issued to landowners and water suppliers who still had not responded and for whom no returned mail or other indication of incorrect contact information was received. The emergency regulation is scheduled to expire on April 1, 2016 (270 days after going into effect) if the State Water Board takes no further action. At this time, the State Water Board proposes readopting only the informational order component of the 2015 regulation, with minor updates for clarity. The enhanced water conservation component of the emergency regulation is not proposed for readoption at this time due to improved hydrologic conditions resulting from increased precipitation so far this water year (October 1, 2015 – September 30, 2016). The State Water Board will continue to monitor hydrologic conditions and consult with CDFW regarding the need for enhanced water conservation measures later this year.



## **Drought Emergency Regulatory Authority**

Water Code section 1058.5 grants the State Water Board the authority to adopt emergency regulations in certain drought years in order to: “prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion, of water, to promote water recycling or water conservation, to require curtailment of diversions when water is not available under the diverter’s priority of right, or in furtherance of any of the foregoing, to require reporting of diversion or use or the preparation of monitoring reports.”

Emergency regulations adopted under Water Code section 1058.5 remain in effect for up to 270 days. The finding of emergency is not subject to review by the Office of Administrative Law. In this document, the State Water Board is providing the necessary specific facts demonstrating compliance with Water Code section 1058.5, subdivision (a), and also Government Code section 11346.1. Government Code section 11346.1, subdivision (a)(2) requires that, at least five working days prior to submission of the proposed emergency action to the Office of Administrative Law, the adopting agency provide a notice of the proposed emergency action to every person who has filed a request for notice of regulatory action with the agency. After submission of the proposed emergency to the Office of Administrative Law, the Office of Administrative Law shall allow interested persons five calendar days to submit comments on the proposed emergency regulations as set forth in Government Code section 11349.6.

The information contained within this finding of emergency provides information to support the State Water Board’s emergency rulemaking under Water Code section 1058.5 and also meets the emergency regulation criteria of Government Code section 11346.1 and the applicable requirements of section 11346.5.

## **Evidence of Emergency**

As of February 1, 2016, the U.S. Drought Monitor classifies the majority of the state of California as experiencing severe- to exceptional- drought conditions (United States Drought Monitor, 2016). The entire Russian River watershed is currently classified as experiencing severe drought conditions (United States Drought Monitor, 2016).

The Russian River watershed receives most of its precipitation from December through March, usually from a handful of winter storms. Unlike the watersheds of the Central Valley, which are adjacent to the Sierra Nevada mountain range, there is little to no snowpack available to sustain the Russian River and its tributaries during spring and summer. This results in a rapid decline in base flow as the year progresses. Thus far in water year 2016 (October 1, 2015-January 31, 2016), total rainfall in the Russian River region reached 108% of the historical average for this period (DWR, 2016a). Wet conditions persisted through January 2016 and on February 1, 2016, mean flow at the United States Geological Survey (USGS) gauge in the Russian River near Healdsburg was 2,180 cubic feet per second (cfs), which is 112% of water year 2000-2015 average for February 1 (USGS, 2016a). Precipitation was largely absent in February 2016, which significantly changed watershed conditions. On February 28, 2016, flows in the Russian River near Healdsburg fell to 665 cfs, which is 16% of water year 2000-2015 average for February 28 (USGS, 2016a). California is in a fifth straight year of this drought. Calendar years

2012 through 2015 constitute the driest four-year period of statewide precipitation on record (DWR and USBR, 2015). Water year 2012 was categorized as below normal, calendar year 2013 was the driest year in recorded history for many parts of California, water year 2014 was the third driest in the 119 years of record, and water year 2015 began on a similar dry trend with the driest January on record statewide (DWR and USBR, 2015). Although Water Year 2016 precipitation for the Sacramento River Basin reached 117% of average and the San Joaquin River Basin reached 136% of average through January 31, 2016 (DWR, 2016a), storage in the largest reservoirs across the state remain far below historical averages (DWR, 2016b).

In May 2013, Governor Brown issued Executive Order B-21-13, which directed the State Water Board and the Department of Water Resources (DWR) to, among other things, take immediate action to address dry conditions and water delivery limitations. In December 2013, the Governor also formed a Drought Task Force to review expected water allocations and the state's preparedness for a drought.

Governor Brown's January 2014 Proclamation recognizes, among other things, changes to water supplies and diversions might be necessary to protect salmon and steelhead, to maintain water supplies, and protect water quality. The January 2014 Proclamation ordered the State Water Board to "... put water right holders throughout the state on notice that they may be directed to cease or reduce water diversions based on water shortages," which the State Water Board did on January 17, 2014 and again on January 23, 2015. The State Water Board's January 17, 2014 notice advised that if dry weather conditions persisted the State Water Board would notify water right holders in critically dry watersheds of the requirement to limit or stop diversions of water under their water right, based on their priority. The State Water Board's January 23, 2015 notice encouraged advanced conservation planning and suggested that water right holders look into the use of alternative water supplies, such as groundwater wells, purchased water under contractual arrangements and recycled wastewater.

On March 1, 2014, Governor Brown signed legislation to assist drought-affected communities and provide funding to better manage local water supplies. The drought relief package, among other things, provided funding to improve water conservation, emergency supplies, reduce fire risk, and increase fire-fighting capabilities. The drought relief package also expanded the State Water Board's existing emergency regulation authority under Water Code section 1058.5 and made statutory changes to ensure existing water rights laws are followed, including streamlining authority to enforce water rights laws and increasing penalties for illegally diverting water during drought conditions (Senate Bill 104; Statutes 2014; Chapter 3; Committee on Budget and Fiscal Review). On April 25, 2014, Governor Brown issued a Proclamation of a Continued State of Emergency related to the drought. The April 2014 Proclamation ordered that the provisions of the January 2014 Proclamation remained in full force and added several new provisions. Of note here, the April 2014 Proclamation directed the State Water Board to adopt and implement emergency regulations as appropriate to promote water recycling and curtail diversions when water is not available, and suspended environmental review under CEQA for the adoption of emergency regulations pursuant to Water Code section 1058.5.

On January 23, 2015, the State Water Board issued a Notice of Surface Water Shortage and Potential for Curtailment of Water Right Diversions. The notice advised that if dry weather conditions persist, the State Water Board would notify water right holders in critically dry watersheds of the requirement to limit or stop diversions of water under their water right, based on their priority. Due to the dry hydrologic conditions in 2015, the State Water Board issued Curtailment Orders<sup>2</sup> and Notices of Water Shortage<sup>3</sup> in 2015 to water right holders within critically dry watersheds.

### **Need for the Regulation**

Immediate action is needed to collect information to prevent the waste and unreasonable use of water diverted from priority water bodies that provide habitat for threatened and endangered species in light of limited water availability during the drought. Additional information on water diversion sources, locations, and use is needed to prevent the waste and unreasonable use of water by helping inform and develop potential management actions to improve streamflow related habitat conditions, should the drought continue into 2016 or beyond. The State Water Board intends to update emergency drought requirements for the protection of federal- and state-listed anadromous fish in four priority Russian River tributary watersheds (Dutch Bill Creek, Green Valley Creek, portions of Mark West Creek, and Mill Creek). The existing 2015 regulation that would expire on April 1, 2016 without State Water Board action consists of two elements: (1) enhanced conservation measures for all users of surface and sub-surface water diverted within the four watersheds; and (2) enhanced information order authority that will allow the State Water Board to acquire information in circumstances beyond those covered under the existing information order emergency regulation. At this time, only the informational order component of the 2015 regulation is proposed for readoption, with minor updates for clarity. The enhanced water conservation component of the emergency regulation is not proposed for readoption at this time due to improved hydrologic conditions resulting from increased precipitation so far this water year.

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<sup>2</sup> In 2015, Curtailment Orders were issued in the Antelope Creek watershed on April 4, 2015 and November 1, 2015 and the Deer Creek watershed on April 18, 2015 and October 23, 2015 to ensure drought emergency minimum flows specified in California Code of Regulations, title 23, section 877, subdivision (c) were met.

<sup>3</sup> In 2015 the State Water Board issued Notices of Water Shortage for the following watersheds: San Joaquin River watershed for post-1914 appropriative water rights on April 23, 2015; Scott River watershed for junior class water rights on April 23, 2015; Sacramento-San Joaquin Delta (Delta) watershed permits and licenses with Term 91 on April 30, 2015; Sacramento River watershed and Delta for post-1914 appropriative water rights on May 1, 2015; Sacramento River watershed, San Joaquin River watershed, and Delta for all appropriative water rights with a priority date between 1903 and 1914 on June 12, 2015; and Upper San Joaquin River watershed appropriative water rights with a priority date senior to 1903, Merced River watershed appropriative water rights with a priority date between January 1, 1858 and December 31, 1902, and four appropriative water rights in the Tuolumne River watershed on June 26, 2015.

## **Water Rights Framework**

In order to best understand the need for the regulation and how it will be applied, a very generalized overview of water rights is helpful.

Two main types of water rights constitute the vast majority of surface water diversions in California: riparian rights and appropriative rights. A riparian water right generally provides a right to use the natural flow of a water body to which the land is riparian. Broadly speaking, riparian land is land that touches a lake, river, stream, or creek. Water can only be diverted under a riparian right when that water is used on the riparian parcel on land that drains back to the lake, river, stream, or creek from which the water was taken. Riparian rights remain with the property when it changes hands, although parcels severed from the adjacent water source generally lose their right to the water. Only the natural flow of water can be diverted under a riparian right. Water that is imported into a watershed from another river, stream, or creek cannot be used under a riparian right. Water cannot be stored during a wet time for use during a drier time under a riparian right. Nor can water released from an upstream storage reservoir be used by a downstream user under a riparian right. Riparian rights usually have a senior (higher relative priority) right to natural flows as against appropriative rights, and generally water must be available to fulfill the needs of all riparian rights before an appropriator may divert. This is not always the case, however. An appropriative right predating the patent date of riparian lands has seniority relative to the riparian right. The priorities of riparian right holders are correlative vis-à-vis each other; during a drought all share the shortage among themselves. Because a riparian right only allows the use of natural flow, it is possible to have water available under a riparian right during wetter years or months and not during drier years or months when natural flows are no longer available, including cases where stream flow is being supported by releases of previously stored water. This is particularly the case in dry years such as the current drought.

On the other hand, an appropriative water right is generally needed for water that is diverted for use on non-riparian land or to store water for use when it would not be available under natural conditions. An appropriative right holder can use natural flow, and non-natural flows like imported water from other watersheds or irrigation return flows. Prior to 1914, appropriative water rights were acquired by putting water to beneficial use. The exact priority date of a pre-1914 appropriation can vary depending on the circumstances, but depends on either posting notice under the then applicable procedures of the Civil Code or otherwise clearly initiating the means necessary to divert or actually diverting. An appropriative water right that was acquired before 1914 is usually called a pre-1914 appropriative water right and is not subject to the permitting authority of the State Water Board. Appropriative water rights obtained after 1914 require a water right permit and subsequently a license issued by the State Water Board or its predecessors. Similar to pre-1914 water rights, the seniority of post-1914 water rights is based on a first-in-time concept with the date of seniority typically established by the date of the application for the permit. A water right permit confers the State Water Board's (or its predecessor's) authorization to develop a water diversion and use project. The right to use water is obtained through actual beneficial use of water within the limits described in the permit.

A water right license is issued once full beneficial use of water has been made and other conditions of a water right permit are met and constitutes the confirmation by the State Water Board (or its predecessor) of the water right. As between appropriators, junior water right holders may only divert where there is sufficient water to completely fulfill the needs of more senior appropriators.

When the amount of water available in a surface water source is not sufficient to support the needs of existing water right holders, junior appropriators must cease diversion in favor of more senior rights. However, it is not always clear to a junior diverter whether there is sufficient flow in the system to support their diversion and senior water uses downstream. It can also be difficult to determine whether releases of stored water are abandoned flows that may be diverted or whether those flows are not available for diversion because they are being released for downstream purposes. Similarly, it can be difficult for a riparian to know if water is natural flow or stored or imported water and whether, when and to what extent correlative reductions in water use are needed to share limited supplies among riparians. As part of administering California's water rights, the State Water Board may curtail water diversions based on California's water rights priority system.

For groundwater<sup>4</sup> diversions, overlying rights are analogous to riparian rights. They depend on ownership of the land overlying an aquifer, are limited to reasonable use on that overlying parcel, and are shared correlatively with other overlying owners. Overlying rights cannot include municipal rights. It is also possible to obtain appropriative rights to groundwater. For waters that are underflow of surface water, or that are part of a subterranean stream, it is necessary to apply to the State Water Board for a water right permit for post-1914 appropriations. For other groundwater, known as "percolating groundwater," no permit is necessary. Groundwater and surface water rights are integrated, to the extent that they are interconnected – i.e. where a surface water diversion affects groundwater availability or vice-versa. (*Hudson v. Dailey* (1909) 156 Cal. 617.)

The State Water Board has continuing authority under Water Code sections 100 and 275 to enforce the requirements of the California Constitution, article X, section 2, which directs that the water resources of the state be put to beneficial use to the fullest extent, and that water not be wasted or unreasonably used. It further provides that rights to the use of water are limited to such water as is reasonably required for the beneficial use served, and does not extend to the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of the water.

The reasonable use doctrine applies to both surface water and groundwater, and it applies irrespective of the type of water right held by the diverter or user. (*Peabody v. Vallejo* (1935) 2 Cal.2d 351, 366-367.) What constitutes an unreasonable use, method of use, or method of diversion depends on the facts and circumstances of each case. (*People ex rel. State Water*

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<sup>4</sup> For the purposes of the informational digest, "groundwater" refers to all diversions of sub-surface water.

*Resources Control Board v. Forni* (1976) 54 Cal.App.3d 743, 750.) Under the reasonable use doctrine, water right holders may be required to endure some inconvenience or to incur reasonable expenses. (*Id.* at pp. 751-752.) The State Water Board's continuing authority includes the power to enact regulations that preclude unreasonable use. (Wat. Code § 1058; *Light v. State Water Resources Control Board* (2014) 226 Cal.App.4th 1463, 1482.) The State Water Board also has authority to request information in support of the reasonable use doctrine, including expanded authority for emergency informational regulations in drought years. (Wat. Code §§ 1058.5, 1051.)

### **Status of Species**

Since the settlement of the central California coast, populations of native coho salmon, Chinook salmon, and steelhead have declined dramatically. Information on coho and steelhead is provided below.

#### **Coho Salmon**

Coho salmon populations in California, including Central California Coast coho salmon (CCC coho salmon) populations and Southern Oregon/Northern California Coast coho salmon (SONCC coho salmon) populations, are regarded as particularly vulnerable and have experienced significant population declines in recent decades. Along the central California coast region, CCC coho salmon face the highest risk of extinction compared to the extinction risk for Central California Coast steelhead (CCC steelhead) and California Coastal Chinook (CC Chinook), which are the other anadromous salmonid population to inhabit the region (NMFS, 2008b). Multiple coastal watersheds historically supported large CCC coho salmon and SONCC coho salmon populations, including the Navarro River, Noyo River, Big River, Russian River, and San Lorenzo River (NMFS, 2012). CCC coho salmon were historically prevalent enough to support a commercial fishery (Brown et al., 1994; Steiner Environmental Consulting, 1996). As recently as the 1980s, California's combined CCC coho salmon and SONCC coho salmon catch averaged 83,000 fish annually (Brown et al., 1994, [citing Sheehan, 1991]). CCC coho salmon and SONCC coho salmon population declines are recorded as early as the 1870s due to impacts associated with logging operations (NMFS, 2012), but CCC coho salmon and SONCC coho salmon population declines have been most significant over the past 50 years (CDFG, 2004; NMFS, 2012). CCC coho salmon and SONCC coho salmon populations in California, including hatchery stocks, are currently estimated at 6-15% of their 1940s abundances (Brown et al., 1994; CDFG, 2004), and most spawning populations of CCC coho salmon and SONCC coho salmon in California have been reduced to less than 50-100 fish (Brown et al., 1994; Moyle et al., 2008; NMFS, 2012).

As a result of CCC coho salmon population declines, the CCC coho salmon ESU is listed as endangered on both the federal and California state endangered species lists. The CCC coho salmon ESU includes all coho salmon populations in California found in coastal watersheds between Punta Gorda in Humboldt County and Aptos Creek in Santa Cruz County. Historically, the CCC coho salmon ESU also included tributaries to San Francisco Bay, but all CCC coho salmon populations in San Francisco Bay tributaries have been extirpated. CCC coho salmon population declines are a result of habitat degradation due to logging, agriculture, mining,

urbanization, stream channelization, dams, wetland loss, water withdrawals, and unscreened diversions (Brown et al., 1994; NMFS, 2012). NMFS listed the CCC coho salmon ESU as federally threatened on October 31, 1996, and reclassified the ESU as federally endangered on June 28, 2005 due to continued CCC coho salmon population declines. The State of California listed CCC coho salmon populations south of San Francisco Bay as a state endangered species in 1995, and listed the remainder of the CCC coho salmon ESU as a state endangered species in 2005. Although the CCC coho salmon ESU is now listed as endangered under federal and state endangered species lists, CCC coho salmon populations have continued to decline, and the ESU is now in serious danger of extinction (NMFS, 2012; CDFG, 2002).

In May 2015, NMFS included the CCC coho salmon ESU in its “Species in the Spotlight” initiative, which highlighted the eight endangered species NMFS considers the most at risk of extinction (NMFS, 2015). NMFS’ 2016 Species in the Spotlight- Priority Actions: 2016-2020 for Central California Coast Coho Salmon (Action Plan) highlights four Priority Actions for the protection of CCC Coho Salmon: 1) Continue and expand conservation hatchery programs to prevent extinction; 2) Continue and expand restoration and funding partnerships through implementation of priority recovery actions in targeted locations; 3) Restore key habitats for conservation hatchery outplanting and improve freshwater survival of coho salmon; and 4) Ensure adaptive management for conservation hatchery programs and restoration is informed by monitoring and research. The Action Plan centers around the two existing conservation hatcheries for CCC coho salmon: the Captive Boodstock Conservation Program on the Russian River in Sonoma County; and the Kingfisher Flat Hatchery on Scott Creek in Santa Cruz County. These conservation hatchery programs are focused on preventing extinction, and ultimately using genetics from wild stock to supplement CCC coho salmon populations with hatchery raised juveniles until the populations are determined to be self-sustaining in the wild (NMFS, 2016). Coupled with adaptive management of hatchery operations, efforts to improve habitat conditions in streams where juvenile hatchery-raised CCC coho salmon are released represent some of the most important actions NMFS and its partners can take to promote the recovery of the species.

The Russian River watershed is the largest watershed that supports a CCC coho salmon population within its historic range. Due to the watershed’s large size and central location within the CCC coho salmon ESU, the Russian River CCC coho salmon population is recognized for its importance in supporting CCC coho salmon ESU recovery as a whole (NMFS, 2008b). Historically, the Russian River supported large populations of CCC coho salmon (NMFS, 2012), but Russian River CCC coho salmon population sizes have declined substantially since the 1950s as a result of development, water use, and dam construction (SWRCB, 2011). In the past, more than 30 Russian River tributaries supported wild CCC coho salmon runs, but by 2001, only one stream still supported a wild run (NMFS, 2015). Russian River CCC coho salmon populations have declined from 5,000 estimated adult returners in 1965 (CDFG, 1965), to 587 estimated returners (255 hatchery returners, 332 wild returners) in the late 1980s and early 1990s (Brown et al., 1994), to just 2-185 observed adult returners in 2000-2012 (NMFS, 2012). Additionally, the number of Russian River CCC coho salmon smolts entering the ocean is estimated to have declined 85 percent between 1975 and 1991 (NMFS, 2012). The Russian

River CCC coho salmon population is now one of several CCC coho salmon populations considered to be at high risk of extirpation (NMFS, 2012; NMFS, 2008a; CDFG, 2002).

The Russian River Coho Salmon Captive Broodstock Recovery Program (Broodstock Program) was initiated in 2001 in response to Russian River CCC coho salmon population declines. This multi-agency partnership includes a CCC coho salmon hatchery program at the Don Clausen Warm Springs Hatchery, as well as juvenile and adult CCC coho salmon monitoring efforts. Several agencies provided funding for the Broodstock Program effort, including the US Army Corps of Engineers, NMFS, US Fish and Wildlife Service (USFWS), and Sonoma County. These agencies have continued to provide funding for the Broodstock Program effort, and CDFW has also provided funding for the Broodstock Program effort in recent years. To date, the total cost of the ongoing Broodstock Program is estimated at \$94 million (M. Dillabough, USACE, personal communication, June 4, 2015).

The initial Broodstock Program effort included the collection of 312 CCC coho salmon fry from Russian River tributaries in 2001 (B. White and M. Dillabough, USACE, personal communication, June 4, 2015). The Broodstock Program continued to collect CCC coho salmon fry in 2002 and 2003 prior to releasing any juvenile CCC coho salmon (B. White, USACE, personal communication, June 4, 2015). During the initial CCC coho salmon fry collection period (2001-2003), the Broodstock Program collected a total of 711 CCC coho salmon fry in Green Valley Creek, 117 CCC coho salmon fry in Dutch Bill Creek, and 9 CCC coho salmon fry in Mill Creek (CDFW, 2015k). Since 2004, the Broodstock Program has annually stocked multiple Russian River tributaries with juvenile CCC coho salmon. Nearly half (476,020 of 1,024,219) of the juvenile CCC coho salmon released over the past decade have been stocked in Dutch Bill Creek, Green Valley Creek, Mark West Creek, and Mill Creek, which are recognized for providing key juvenile CCC coho summer rearing habitat (CDFW, 2015k).

Since the initiation of the Broodstock Program, Russian River adult CCC coho salmon population counts have improved, which is regarded as a sign of hope for the species in the Russian River watershed (NMFS, 2012). Since the winter of 2000/2001, the Broodstock Program has collected population data for Russian River CCC coho salmon. All Broodstock Program minimum adult CCC coho salmon returner counts include total detections of adult CCC coho salmon returners to the Russian River basin, including both hatchery returners and natural spawners. The Broodstock Program reports minimum adult CCC coho salmon returner counts of just 2-19 returners during winters 2000/2001 through 2009/2010 (UCCE/CA Sea Grant, 2015). In comparison, Russian River minimum adult CCC coho salmon returner counts increased to 90-208 minimum adult CCC coho salmon returners for return winters 2010/2011 through 2013/2014 (UCCE/CA Sea Grant, 2016). As of February 23, 2016, the Broodstock Program reports that a minimum of 29 adult CCC coho salmon have returned to the Russian River Basin during winter 2015-2016, and at least 43 CCC coho salmon redds have been observed (UCCE/CA Sea Grant, 2016). Broodstock Program Russian River minimum adult CCC coho salmon returner counts include all adult CCC coho salmon recorded via passive integrated transponder (PIT) tag detections, spawner surveys, adult trapping, and video monitoring. The Broodstock Program typically monitors for adult CCC coho salmon returners



through multiple methods each year. To avoid duplication in the overall count for adult CCC coho salmon returners to the Russian River basin, the Broodstock Program reports the most conservative count: if there was a possibility for counting a single fish using more than one method, the Broodstock Program assumes duplication and reports the smallest number.

The Broodstock Program also reports that wild juvenile CCC coho salmon counts have improved in recent years. Wild juvenile CCC coho salmon counts have increased from an annual average of 234 during the years of 2005-2009 to an annual average of 5,895 during the years of 2010-2013 (UCCE/CA Sea Grant, 2014a). Wild juvenile CCC coho salmon counts are minimum juvenile CCC coho salmon counts for the Russian River basin detected via snorkel surveys. The Broodstock Program detected wild juvenile CCC coho salmon in the Russian River basin through several methods over the period of record.

### **Steelhead**

The CCC steelhead ESU also inhabits the Russian River watershed. The CCC steelhead ESU includes all steelhead populations from the winter-run populations in the Russian River basin south to Aptos Creek in Santa Cruz County, and the drainages of San Francisco, San Pablo, and Suisun Bays, including the tributary streams to Suisun Marsh, but excluding the Sacramento-San Joaquin River system. The Don Clausen Warm Springs Fish Hatchery, located downstream of Lake Sonoma on Dry Creek, first released CCC steelhead in 1982. In 1992, the Coyote Valley Fish Facility was opened at the base of the Coyote Valley Dam on the East Fork Russian River, 157 kilometers from the ocean. At the Don Clausen Warm Springs Fish Hatchery, an average of 3,301 fish were trapped and 244 females were spawned during the brood years 1992–2002. At the Coyote Valley Fish Facility, an annual average of 1,947 CCC steelhead were trapped from 1993 to 2002 and an average of 124 females spawned. There is limited information on CCC steelhead abundance in the Russian River, but steelhead are observed in the watershed. As of February 17, 2016, the Broodstock Program reports that a minimum of 58 adult CCC steelhead have returned to the Russian River Basin during winter 2015-2016, and at least 82 CCC steelhead redds have been observed (UCCE/CA Sea Grant, 2016). As of 1998, 100 percent of hatchery-released CCC steelhead have had their adipose fin clipped. Until brood year 2000, both hatchery and naturally spawned fish were included in the broodstock in the proportion that they returned to the hatchery. Since then, only adipose-marked fish are spawned, and all unmarked CCC steelhead are relocated into tributaries of Dry Creek (NMFS, 2005a).

In 1996 NMFS concluded that the CCC steelhead ESU was in danger of extinction citing likely extirpation of populations in Santa Cruz County and in tributaries to San Francisco and San Pablo Bays, as well as apparent substantial declines in CCC steelhead numbers in the Russian River (NMFS, 1996). Subsequent reviews of steelhead status (NMFS, 1997; NMFS, 2005a) concluded that the CCC steelhead ESU was not presently in danger of extinction, but was likely to become so in the foreseeable future. CCC steelhead ESU were federally listed as threatened on August 18, 1997, and were reaffirmed as threatened on January 5, 2006. In the Russian River basin, CCC steelhead return in substantial numbers to the Don Clausen Warm Springs Hatchery and Coyote Valley Fish Facility, with an average of just over 7,000 steelhead returning

to these facilities annually in the last 10 years. Juvenile releases during this period have averaged nearly 500,000 steelhead annually. Data on CCC steelhead population abundance of wild fish or the fraction of hatchery fish occurring on natural spawning grounds remains limited (NMFS, 2011). Like juvenile CCC coho salmon in the Russian River watershed, juvenile CCC steelhead spend the summer rearing period in Russian River tributaries. CCC steelhead begin migration upstream in late fall.

### **CCC Coho Salmon and CCC Steelhead Life History and Summer Rearing Needs**

In California, coho salmon<sup>5</sup> have a relatively strict three-year life cycle, spending about half of their lives in freshwater and half in saltwater (Moyle, 2002, cited in R2 Resource Consultants, 2007). CCC coho salmon migrate upstream from November through early March, with peak migration occurring during December and January (USACE, 2008; Moyle, 2002). Coho salmon spawn shortly after arriving on the spawning grounds in headwater streams (Shapovalov and Taft, 1954). The eggs hatch after incubating in the gravels for 8 to 12 weeks (Moyle, 2002, cited in R2 Resource Consultants, 2007). After hatching, the alevins remain in the gravel for 4 to 10 weeks depending on water temperatures. Upon emergence, coho salmon fry tend to move to shallow water areas where they feed and continue to grow into juveniles. Juvenile CCC coho salmon rear and overwinter in the stream until the following March or early April, when, after smoltification, they begin migrating downstream to the ocean (NMFS, 1995; Shapovalov and Taft, 1954). In California, peak downstream migration occurs from April to early May (NMFS, 1995; Shapovalov and Taft, 1954). Compared to other anadromous salmonids in California, coho salmon may be particularly vulnerable to extirpation due to their lengthy rearing period and relatively strict three-year life cycle (Gustafson et al., 2007). CCC coho salmon production is also highly sensitive to interannual environmental variations in stream conditions (Lawson et al., 2004).

CCC steelhead in the Russian River watershed are considered winter steelhead, or ocean-maturing steelhead. Winter CCC steelhead upstream migration generally extends from December through early April, peaking in most area streams during January and February (USACE, 2008; Moyle, 2002). Winter steelhead spawn within a few weeks to a few months from the time they enter fresh water. Peak spawning occurs January through March, but can extend into spring and early summer months. The eggs hatch in approximately three to four weeks, with fry emerging from the gravel two to three weeks later. The fry then move to shallow protected areas associated with the stream margin for several weeks (Moyle, 2002, cited in R2 Resources Consultants, 2007).

Steelhead typically spend two years in freshwater, but freshwater residence time can range from one to four years (McEwan and Jackson, 1996; Moyle, 2002, cited in R2 Resource Consultants, 2007). Emigration to the estuary or ocean can occur year-round, with peaks in the late fall/early winter and late spring/early summer (USACE, 2008; Shapovalov and Taft, 1954).

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<sup>5</sup> For purposes of this section, the terms “coho salmon” and “steelhead” are used to reference each species. “CCC” will precede references specific to the two species’ to note the Central California Coastal Evolutionarily Significant Unit.

Steelhead typically spend one to two years in the ocean before returning to spawn for the first time. Steelhead are able to reproduce repeatedly during their lifetime, and may return to the ocean and spawn again in a later year.

The summer rearing stage for juvenile coho salmon, juvenile steelhead, and other juvenile anadromous salmonids is considered the life stage of greatest concern (CDFW, 2015k). In the Russian River watershed, the majority of precipitation occurs during the months of November through March, and streamflows gradually recede through the spring and approach very low base flows by the end of the dry season (Grantham et al., 2012). During the summer months, Russian River tributary stream flows are typically lowest, instream temperatures are warmest, and water demand is at its greatest (CDFW, 2015k). These low flow conditions are a source of stress for juvenile salmonids, which typically seek out cold water refugia in pool habitats during the summer period. Typically, juvenile CCC coho salmon and CCC steelhead seek out cold water refugia in the upper reaches of Russian River tributaries, where higher flows and lower stream temperatures may be maintained throughout the summer rearing period. Minimum flows that provide for habitat connectivity are needed to maintain juvenile salmonid intra-stream passage conditions in early summer. Instream flows are also needed to maintain habitat conditions necessary for juvenile CCC coho salmon and juvenile CCC steelhead viability throughout the dry summer months, including adequate dissolved oxygen concentrations, low stream temperatures, and high rates of invertebrate drift from riffles to pools. The importance of these passage conditions and habitat requirements is discussed in the following paragraphs.

#### Dissolved Oxygen

Juvenile salmonids, including juvenile CCC coho salmon and juvenile CCC steelhead, require adequate dissolved oxygen concentrations and other water quality parameters to survive the stressful summer months. During the summer rearing period, juvenile CCC coho salmon and juvenile CCC steelhead are dependent on an input of dissolved oxygen from upstream riffles (CDFW, 2015k; Obedzinski and Nossaman, 2012). Riffles and pools may lose hydrologic connectivity at low flows, which causes dissolved oxygen concentrations to drop in pools. When riffles and pools lose hydrologic connectivity, dissolved oxygen concentrations in pools often begin to drop within days, although some pools can sustain the dissolved oxygen concentrations necessary for juvenile salmonid viability for up to one month (CDFW, 2015k; Obedzinski and Nossaman, 2012; Matthews and Berg, 1997). Low dissolved oxygen concentrations can negatively impact juvenile salmonid growth, development, and behavior (Carter, 2005; Herrmann, 1958). Extreme or chronically low dissolved oxygen concentrations can also lead to fish mortality (Carter, 2005).

#### Stream Temperatures

Low flows, coupled with elevated stream temperatures, tend to cause stressful conditions for coldwater aquatic species, such as CCC coho salmon and steelhead (Ozaki, 1994; May and Lee, 2004). When water temperatures reach stressful levels for anadromous salmonids, juvenile salmonid growth decreases as energy is diverted to thermally compensate for marginal rearing conditions (Ozaki, 1994). Prolonged periods of stressful stream temperatures or short-term periods of extremely high temperatures can both lead to fish mortality. Juvenile coho

salmon and juvenile steelhead tend to avoid rearing habitat where high stream temperatures are present, if more favorable habitat is available (Boughton et al., 2009; Madej et al., 2006; Welsh et al., 2001).

#### *Drift and Food Source Availability*

Aquatic invertebrates are a primary food source for juvenile coho salmon and juvenile steelhead (Dill and Fraser, 1984). The drift of aquatic invertebrates from riffles to pools provides an important prey source for juvenile salmonids, as aquatic invertebrate production is highest in riffle habitat (Bradford and Heinonen, 2008), but juvenile coho salmon and juvenile steelhead inhabit pools during the summer rearing period. Rates of invertebrate drift tend to be low at low water velocities and low flows (Harvey et al., 2006). Under low flow conditions, juvenile fish growth tends to decrease due to low rates of invertebrate drift and, therefore, decreased food availability (Bradford and Heinonen, 2008; Harvey et al., 2006; May and Lee, 2004). In small streams, small changes in flow can result in significant changes in prey availability from invertebrate drift (Harvey et al., 2005). Increased summer base flows in small streams can increase juvenile salmonid prey availability and improve habitat quality (Harvey et al., 2006).

#### **Need for Emergency Regulation in Dutch Bill Creek, Green Valley Creek, Portions of Mark West Creek, and Mill Creek Watersheds**

Immediate action is needed to acquire information to support fish and to maintain beneficial uses of water in the Dutch Bill Creek, Green Valley Creek, portions of Mark West Creek, and Mill Creek watersheds (priority tributaries; See Attachments 23-27). CDFW and NMFS are legally obligated under the California- and Federal Endangered Species Acts to take actions to prevent the extirpation of CCC coho salmon from the Russian River watershed. These four tributaries have also been identified as Coho Partnership Priority watersheds (Obedzinski and Nossaman, 2012). All four tributaries support CCC coho salmon and CCC steelhead populations, and do not contain major flow-regulating reservoirs. CCC coho salmon and CCC steelhead present in Dutch Bill Creek, Green Valley Creek, Mark West Creek, and Mill Creek are therefore at risk of extirpation due to low flow conditions. Because this is the fifth year of drought, all three year-classes of CCC coho salmon have been affected by the ongoing drought.

In a letter to the State Water Board Executive Director dated May 28, 2015, CDFW, in collaboration with NMFS, recommended the State Water Board develop emergency regulations to: (1) issue an informational order to determine the extent of current surface and sub-surface diversion operations in each of the priority watersheds; and, (2) immediately implement conservation measures to limit the amount of water extracted from these watersheds during the drought (Attachment 3; CDFW, 2015g). CDFW noted that low flow conditions in tributaries of the Russian River resulted in significant declines in salmonid population, production and survival during the 2014 season, and drought conditions persisted in 2015. CDFW added that conditions in these priority watersheds were quickly deteriorating and without significant water conservation efforts most if not all portions of these tributaries could experience fish mortality due to early drying of rearing habitat. CDFW stated the selected tributaries have sustained perennial flow in the previous three drought years and available habitat is limited by lack of flow. The letter recognized the lack of information on the exact number, location, and amount of diversions in these watersheds in addition to the large number of summer diversions that are

cumulatively affecting the amount of water available for instream habitat. CDFW included a link to a map titled Drought Priority Watersheds in the Russian River watershed and Reaches of Interest, that delineated watershed boundaries for the Dutch Bill Creek, Green Valley Creek, Mark West Creek, and Mill Creek watersheds, reaches of interest, and the portions of the watersheds which contribute to the reaches of interest (Attachment 3).

In a February 19, 2016 letter to the Deputy Director, CDFW recommends the State Water Board re-adopt the informational order component of the emergency regulation, pursuant to Water Code section 1058.5, for the Dutch Bill, Green Valley, portions of Mark West, and Mill Creek watersheds (Attachment 2, CDFW 2016). CDFW states that the data collected to date pursuant to the informational order have been helpful toward obtaining a better understanding of water diversions; however, the data are not complete, and would be assisted by the re-adoption of the informational order. CDFW also notes that the recent rain events have led to favorable hydrologic conditions and CDFW does not recommend re-adopting the enhanced conservation measures at this time. The 2015 and 2016 CDFW recommendations are in accord with other studies and information regarding fishery needs, as described above.

CDFW has partnered with NMFS to develop a California Voluntary Drought Initiative Program. In October 2014, April 2015, and May 2015, CDFW provided letters to all landowners within selected areas of the four priority tributary watersheds encouraging water conservation and the development of Voluntary Drought Initiative Agreements (Agreements). On April 21, 2015, the State Water Board's Division of Water Rights and the CDFW Bay Delta Region mailed a joint letter to approximately 600 riparian landowners in the upper portions of the Dutch Bill Creek, Green Valley Creek, Mark West Creek, and Mill Creek watersheds requesting that landowners enter into voluntary agreements with CDFW to help ensure enough water remains in the streams to support populations of juvenile CCC coho salmon during the dry summer months. On April 23, 2015 the [Santa Rosa] Press Democrat published an opinion-editorial written by the Executive Director of the State Water Board, Thomas Howard, and the Director of the CDFW, Charlton H. Bonham, which described the threats facing CCC coho salmon in the priority Russian River tributaries, publicized the call for voluntary agreements, and again stated that in the absence of sustainable voluntary commitments not to take water, the State Water Board may need to pass emergency regulations that compel curtailment of water rights in those tributaries. In addition to those cooperative efforts, CDFW encouraged residents to implement additional water conservation actions. In order to communicate the dire conditions of these watersheds and to encourage landowner cooperation, CDFW conducted several outreach meetings (May 14, 2015 in Occidental; May 21, 2015 in Windsor) with local stakeholders, which State Water Board staff attended. On April 29, 2015, Board Members Dorene D'Adamo and Steven Moore attended a meeting with the Sonoma County Farm Bureau and CDFW to discuss water issues in the Russian River watershed. On June 5, 2015, Board Member Dorene D'Adamo attended a Sonoma County Winegrape Commission meeting to discuss CDFW's Voluntary Drought Initiative Program and the State Water Board's proposed emergency regulation. On June 10, 2015, CDFW and State Water Board staff attended a meeting with the Sonoma County Farm Bureau to discuss the proposed emergency regulations.

As of November 2, 2015, CDFW entered into Agreements with 35 residential landowners to forgo irrigation of lawns, implement additional water conservation measures and provide CDFW creek access to monitor fishery and stream conditions and implement potential fish rescue actions for the 2015 summer rearing and migration periods. CDFW also entered into seven Agreements with vineyards and wineries to: 1) implement additional water conservation measures; 2) provide CDFW and NMFS creek access to monitor fishery and stream conditions and implement potential fish rescue actions for the 2015 summer rearing and migration periods; 3) reduce instantaneous diversion rates and coordinate diversions among adjacent landowners so that instantaneous diversion rates can be limited by withdrawing water at different times, where possible; and 4) implement agricultural best management practices including, but not limited to, using low-flow sprinkler irrigation systems, soil and/or plant moisture monitoring devices to determine irrigation needs, and pressure washing cellar and winery floors with high pressure/low volume cleaning equipment fitted with shut-off nozzles. CDFW also entered into four flow enhancement agreements that included flow releases to the creeks in the priority tributary watersheds. One voluntary flow enhancement agreement was with the Camp Meeker Recreation and Park District (a water supplier) to release water into Dutch Bill Creek during the dry season. This flow enhancement agreement was initiated on August 25, 2015 at a rate of 45 gallons per minute (gpm). The Camp Meeker Recreation and Park District flow enhancement project continued through November or until flows were restored from rainfall events (State Water Resources Control Board and CDFW, 2015). In the Green Valley Creek watershed, CDFW entered into voluntary three flow enhancement agreements with: Bob Gianni; Chris Panyam and Michael Paine; and Jackson Family Wines, Inc. In total, the three flow enhancement agreements on Green Valley Creek corresponded to a release of approximately 13.2 acre-feet total. The flow enhancement agreements on Green Valley Creek were signed in late August 2015 (Chris Panyam and Michael Paine; and Jackson Family Wines, Inc) and October 2015 (Bob Gianni). All three Green Valley Creek flow enhancement agreements included releases into Green Valley Creek through November or until flows were restored from rainfall events (State Water Resources Control Board and CDFW, 2015).

Prior to the State Water Board's initial emergency regulation and subsequent informational order, there was a dearth of information on water diversions in these tributaries. In 2015, CDFW identified a significantly greater number of diversions than those for which the State Water Board has reported information. The response to informational orders so far has identified more than 130 unreported surface water diversions, that is, diversions that are not reported in the Division of Water Rights' Electronic Water Rights Information Management System (eWRIMS). Additionally, because of the known connectivity between surface and groundwater in this area, information on surface water diversions alone results in an incomplete understanding of water diversion and use in these watersheds. As a result, the State Water Board determined it was necessary to require additional water user information in order to inform future drought actions for the protection of specific fisheries in four tributaries to the Russian River: Dutch Bill Creek, Green Valley Creek, portions of Mark West Creek, and Mill Creek. Additional information can support identification of voluntary or regulatory actions that could more effectively be tailored to support instream flows, dissolved oxygen concentrations, stream temperatures, and invertebrate drift conditions needed to maintain juvenile CCC coho salmon and juvenile CCC steelhead viability during the summer rearing period as well as

provide passage for migrating adult CCC coho salmon and CCC steelhead during the late-fall through spring migration period.

The State Water Board has determined that the enhanced water conservation component of the prior emergency regulation is not immediately necessary because precipitation conditions during the early part of water year 2016 have improved somewhat compared to precipitation conditions during the previous years of this drought. Additionally, CDFW's February 19, 2016 memorandum to the Deputy Director requests that the State Water Board readopt only the informational order component of the emergency regulation at this time. Data on water diversions and use remain incomplete and insufficient to allow for the most effective management of water diversions and use for the protection of these imperiled species under current or future drought conditions. Insufficient information exists to accurately estimate the number of water wells, the location of the wells, or the current demand for water in the Russian River basin based on existing data. Approximately 10 percent of recipients of the August 2015 informational order have yet to respond, and quality control sampling of submissions has revealed that a significant number of respondents have provided incomplete or inaccurate information.

Many Russian River tributaries naturally approach or reach intermittency in some or all of their length by the end of the summer season (Grantham et al. 2012). However, the priority tributaries maintain sub-surface connectivity with the Russian River. The four tributaries targeted in the proposed regulation were chosen, among other reasons, because they are historically perennial, providing year-round rearing habitat for salmonids (USEPA, 2005, CDFW, 2015k). Currently, the four tributaries remain perennial in their upper reaches during most years. However, due largely to development and associated water diversion, their lower reaches often experience intermittency, causing a loss of connectivity to the mainstem Russian River at some point in the dry season; this occurs sooner during drought years and can persist into the fall.

The State Water Board recognizes that surface water and groundwater diversions can significantly contribute to low flow conditions in Russian River tributaries. The State Water Board previously determined that surface water and groundwater diversions both have the potential to significantly affect streamflows in the Russian River basin on a short-term basis (State Water Resources Control Board, 2011). Juvenile CCC coho salmon and juvenile CCC steelhead were significantly impacted by low flows and poor habitat quality in Russian River tributaries during the past several summers of drought. While the State Water Board maintains information on self-reported surface water diversions and certain groundwater diversions in its eWRIMS database, it lacks information such as diversion and use amounts for the majority of groundwater wells in the Russian River watershed (and elsewhere in the state). Without such information, it is impossible to accurately quantify stream losses resulting from groundwater diversions due to the significant groundwater-surface water connectivity in the Russian River watershed.

Drought conditions exacerbate summer low flow conditions in Russian River tributaries. Russian River tributaries' summer baseflows were particularly low during the past several summers, with many lower tributary sections reaching intermittency earlier in the summer than in previous years. This finding is supported by streamflow data from the USGS gauging station at Mark West Creek near Mirabel Heights, California (USGS # 11466800) (Attachment 5). In 2014, discharge at this site fell below 0.10 cfs on July 28 and reached zero cfs by September 2, the first time on record during the current drought. By contrast, in 2010, an average year, the mean daily flow on July 28 was 8.1 cfs and on September 2 it was 2.2 cfs. On June 10, 2015, daily mean flow at this station was 7.3 cfs, 70% lower than the period of record average value of 14.6 cfs for that day of the year. In 2014, flows on June 10 were 9.7 cfs (USGS, 2016b; USGS, 2015). In 2015, flows at the site fell below 0.10 cfs on August 7, and reached zero cfs by August 12. As of February 28, 2016, daily mean flow at the Mirabel Heights station was 87 cfs, 8% of the average for the period of record on February 28 (USGS, 2016b). The period of record at this gauge is Water Years 2006-2015. On February 28, 2015, daily mean flow was only 77 cfs, or 7% of historic average. While the winter precipitation and stream flows in 2016 are slightly improved over 2015, the outlook for summer is uncertain and will depend heavily on precipitation during the remainder of the winter and spring. State Water Board staff has been actively communicating with CDFW staff regarding streamflows and the outlook for fishery resources this year. State Water Board staff will continue to communicate with CDFW staff regarding streamflows and fishery resources this year and beyond should the drought continue.

Based on Broodstock Program stream surveys conducted in the summers of 2012 and 2014, it is apparent that larger sections of Dutch Bill Creek, Green Valley Creek, Mark West Creek, and Mill Creek are becoming intermittent during the summer months. Broodstock Program staff surveyed sections of Dutch Bill Creek, Green Valley Creek, and Mill Creek in 2012, and resurveyed the same stream sections in 2014. (Broodstock Program staff also surveyed a section of Mark West Creek in 2014, but did not conduct a survey in 2012.) The length of intermittent stream sections in Dutch Bill Creek, Green Valley Creek, and Mill Creek surveyed by the Broodstock Program was greater (i.e., more dry sections of stream observed) in the summer of 2014 than in the summer of 2012, even though both water years were dry. Drier stream conditions between 2012 and 2014 suggest that fishery resources have been impacted by the compounding effects of the prolonged drought. Although there was no Mark West Creek survey in 2012, State Water Board staff also believe that a larger portion of Mark West Creek was dry in summer 2014 compared to summer 2012. This finding is attributed to the ongoing drought, which exacerbated low flow conditions in the Russian River watershed and imperiled juvenile CCC coho salmon and juvenile CCC steelhead. As portions of the stream become hydraulically disconnected from each other, water quality conditions deteriorate in isolated habitat units (e.g., pools). Juvenile CCC coho salmon and juvenile CCC steelhead require low water temperatures, adequate concentrations of dissolved oxygen, and other water quality parameters which deteriorate under low or intermittent flow conditions (See Attachments 6-22; UCCE/CA Sea Grant, 2012b through UCCE/CA Sea Grant, 2012d; UCCE/CA Sea Grant, 2014f through UCCE/CA Sea Grant, 2014o).



Uncharacteristically low streamflows and poor habitat conditions throughout the Russian River basin during the summer of 2014 resulted in extremely stressful conditions for rearing juvenile salmonids. CDFW coordinated one juvenile CCC coho salmon rescue operation in the Russian River watershed in the summer of 2014, which was prompted by poor habitat conditions. This fish rescue operation was conducted on Peña Creek. Both Peña Creek and Mill Creek are tributaries to Dry Creek. CDFW reports that at the time of the rescue, hundreds of CCC juvenile coho salmon had already perished on Peña Creek. During the juvenile CCC coho salmon rescue operation, CDFW staff successfully rescued 82 juvenile CCC coho salmon on Peña Creek, which were relocated to the Don Clausen Warm Springs Hatchery (G. Neillands, CDFW, personal communication, March 2015). Typically, CDFW prefers to relocate juvenile CCC coho salmon to nearby stream reaches rather than to the Don Clausen Warm Springs Hatchery. However, due to stressful habitat conditions and a lack of instream flows throughout the watershed, CDFW was unable to locate a suitable stream site for juvenile CCC coho salmon relocation. Of the 82 juvenile CCC coho salmon rescued on Peña Creek, 81 perished during the rescue operation or at the Don Clausen Warm Springs Hatchery shortly after relocation. The fish likely perished as a result of chronic stress due to high temperatures and poor water quality conditions on Peña Creek during the period preceding the fish rescue (G. Neillands, CDFW, personal communication, March 2015).

In 2015, CDFW staff, with the assistance of UCCE/CA Sea Grant personnel, rescued CCC coho salmon and CCC steelhead from remaining shallow pools within several Russian River tributaries. On May 1, 2015, CDFW staff rescued CCC coho salmon and steelhead from the remaining shallow pools on lower Felta Creek, tributary to Mill Creek; a total of 32 coho smolts, 76 CCC coho young-of-the-year (YOY), and 21 CCC steelhead parr were rescued on lower Felta Creek (CDFW, 2015a). On May 4, 2015, CDFW staff rescued CCC coho salmon and steelhead from shallow pools on lower Peña Creek, tributary to Dry Creek; a total of 32 CCC coho smolts, 593 steelhead YOY, and six steelhead parr were rescued on Peña Creek (CDFW, 2015b). On May 6, 2015, CDFW staff rescued CCC coho salmon and CCC steelhead from isolated shallow pools on lower Porter Creek, tributary to the Russian River mainstem; a total of 202 CCC coho smolts, 101 CCC steelhead YOY, seven CCC steelhead smolts and two CCC steelhead parr (CDFW, 2015c). On May 12, 2015, CDFW staff conducted a second rescue of CCC coho salmon and CCC steelhead from the remaining shallow pools on lower Peña Creek, tributary to Dry Creek; a total of 12 CCC coho smolts, 78 CCC steelhead YOY, and one CCC steelhead parr were rescued on lower Peña Creek (CDFW, 2015d). On May 15, 2015, CDFW staff rescued CCC coho salmon and CCC steelhead from the disconnected shallow pools on Mill Creek, tributary to Dry Creek; a total of 206 CCC coho smolts, 129 CCC steelhead YOY, and one CCC steelhead smolt were rescued on Mill Creek (CDFW, 2015e). On June 2, 2015, CDFW staff rescued CCC coho salmon and CCC steelhead from the remaining isolated pools in two small unnamed tributaries to Green Valley Creek; a total of 111 CCC coho smolts, 167 CCC coho YOY, 19 CCC steelhead YOY, and four CCC steelhead parr were rescued from the two unnamed tributaries to Green Valley Creek. Stream flows and water quality conditions within the Russian River tributaries continue to rapidly decline with the ongoing drought (CDFW, 2015f).

While drought conditions persisted through fall 2015, precipitation in winter 2015-2016 has improved flow conditions in many creeks. However, if the wet conditions do not continue into spring 2016 or if the current drought continues into future years, low flows could threaten CCC coho salmon and CCC steelhead adult in-migration and spawning in the winter and spring, as well as juvenile out-migration in the spring. Low flow conditions can hinder or prevent passage of in-migrating salmonids to the quality spawning habitat found in the upstream reaches of Russian River tributaries. Successful spawning is crucial to the persistence of salmonid populations. Coho are especially sensitive to disruptions in annual spawning, due to their predominant three-year life cycle, and a failed spawning season can result in the loss of an entire coho year class (Moyle, 2002; Shapovalov and Taft, 1954). CCC coho salmon and CCC steelhead present in Dutch Bill Creek, Green Valley Creek, Mark West Creek, and Mill Creek are at risk of extirpation due to low flow conditions affecting multiple year-classes in this extended drought. CCC coho salmon populations tend to follow a three-year life cycle which typically results in three distinct include three year-classes, each of which tends to follow a three-year life cycle. The decline in CCC coho salmon populations over three or more years, such as has been seen over the current drought period, is particularly concerning because each year class has been negatively impacted by the current drought. Depending largely on flow conditions, adult CCC coho salmon upstream migration can occur from November through early March, with peak migration occurring December through January (USACE, 2008; Moyle, 2002). Adult CCC steelhead typically migrate upstream from December through early April, with a peak in January and February (USACE, 2008; Moyle, 2002). Likewise, sufficient streamflow needs to be present to allow for the downstream migration of juvenile salmonids from the upper reaches to the estuary and ocean. Juvenile CCC coho salmon typically migrate downstream March through June, with peak migration in April through early May (NMFS, 1995; Shapovalov and Taft, 1954). Juvenile CCC steelhead may migrate downstream throughout the year, with peak migration occurring in late October through mid-December and in April through June (USACE, 2008; Shapovalov and Taft, 1954). It is essential that sufficient water remain in the stream during these crucial periods.

The State Water Board recognizes the severity of drought conditions in the Russian River tributaries, and the drought's potential impacts to juvenile CCC coho salmon and juvenile CCC steelhead viability in Russian River tributary watersheds in the summer, as well as potential impacts to passage of migrating juvenile CCC steelhead and CCC coho salmon and adult CCC steelhead and CCC coho in the fall, and the potential for drought conditions to affect winter and early spring migratory conditions for adult and juvenile CCC coho and CCC steelhead. Should additional actions be necessary due to water conditions on these tributaries during this drought or future droughts, the information gathered pursuant to this emergency regulation will be necessary to inform what actions should be taken and who would be subject to those actions based on longstanding rules regarding water diversion and use.

## **Watershed Descriptions**

### **Dutch Bill Creek**

Dutch Bill Creek is a tributary to the Russian River, located in Sonoma County. The Dutch Bill Creek watershed spans approximately 12 square miles, and the watershed ranges in elevation from 12 to 1477 feet (USGS, 2015). Mean annual precipitation in the watershed is 56 inches (USGS, 2015). Nearly half of the Dutch Bill Creek watershed area is made up of irrigated crop lands (DWR, 1999). Major crop types in the Dutch Bill Creek watershed include pasture and vineyards (DWR, 1999). Surficial geology in the Dutch Bill Creek watershed consists primarily of the Franciscan Complex with small areas of the Wilson Grove Formation in the upper watershed (CDMG, 1982).

In 2006, NMFS designated Dutch Bill Creek as critical habitat for CCC steelhead (50 C.F.R. § 226.211 (2006)), and CDFW and NMFS recognized Dutch Bill Creek for its high aquatic resource value. Coho salmon were observed in Dutch Bill Creek by CDFW staff in 2002, but were not observed during surveys in 2001 (CDFG, 2004). In more recent years, both juvenile and adult CCC coho salmon have been regularly documented in Dutch Bill Creek (UCCE/CA Sea Grant, 2015). Juvenile CCC coho salmon have been documented through a combination of snorkel surveys and trapping of migrating CCC coho salmon each summer from 2011-2014 (UCCE/CA Sea Grant, 2015). Spawner surveys and PIT-tag detections have documented adult CCC coho salmon in Dutch Bill Creek during the spawning period from the 2010/2011 winter season through the 2015/2016 winter season (UCCE/CA Sea Grant, 2016; UCCE/CA Sea Grant, 2015). As of February 17, 2016, at least four CCC coho salmon redds and at least five CCC steelhead redds have been observed in the Dutch Bill Creek watershed during winter 2015/2016 (UCCE/CA Sea Grant, 2016). In addition, as of February 17, 2016, at least three adult CCC steelhead have been observed in the Dutch Bill Creek watershed (UCCE/CA Sea Grant, 2016). In 2014, UCCE/CA Sea Grant observed 3,147 juvenile CCC steelhead in Dutch Bill Creek (see Attachment 14; UCCE/CA Sea Grant, 2014k). In 2015, UCCE/CA Sea Grant staff estimated 1,404 juvenile CCC coho salmon (1,300 YOY coho salmon and 104 parr coho salmon) and 1,054 juvenile CCC steelhead (934 YOY steelhead and 120 parr steelhead) were present in Dutch Bill Creek (Obedzinski et al., 2016). These 2015 estimates are based on an expanded count of actual observations.

O'Connor Environmental, Inc. recently developed a hydrologic model of the Dutch Bill Creek and Green Valley Creek watersheds with funding provided by the CDFW Fisheries Restoration Grant Program. This modeling effort included a simulation of the complete hydrologic cycle, including groundwater-surface water interactions. O'Connor Environmental, Inc. used the hydrologic model to identify stream reaches in Dutch Bill Creek and Green Valley Creek that would benefit from instream habitat improvement projects, stream reaches where flow augmentation projects would enhance habitat conditions for salmonids, and stream reaches that are potentially impacted by groundwater and surface water diversions (Gold Ridge Resource Conservation District, 2016). The hydrologic model could be used to inform future water management decisions in the Dutch Bill Creek and Green Valley Creek watersheds. As of March 10, 2016, O'Connor Environmental, Inc. is finalizing a technical report detailing the study

results, which is anticipated to be released to the public in late March 2016 (S. Cantor, Gold Ridge Resource Conservation District, personal communication, March 2016).

CDFW has identified a reach of interest and corresponding upper portion of the watershed for CCC coho salmon rearing in the Dutch Bill Creek watershed. The upper portion of the watershed encompasses 9.8 square miles, and is defined as the portion of the watershed upstream of the confluence with Tyrone Gulch at the Latitude/Longitude of 38.44776°N and 122.99979°W (Gray, 2015; See Attachments 4 and 24).

As of February 1, 2016, there were 27 active water rights records, in eWRIMS, located in the Dutch Bill Creek watershed, including: 14 appropriative rights, two stockpond certificates, four domestic registrations, five riparian claims, two inactive<sup>6</sup> records, and two unspecified<sup>7</sup> records. The 25 water rights for which annual reports are available reported a total average (2010-2013) annual demand of approximately 121 acre-feet. The reported beneficial uses in the watershed are irrigation, fire protection, stock watering, recreational, domestic, dust control, municipal and fish and wildlife preservation and enhancement. Nine of the 27 active water rights claim domestic as a beneficial use. Prior to the issuance of Order 2015-0026-DWR, there are no readily available real-time USGS or DWR flow records for the Dutch Bill Creek watershed. The State Water Board had very limited knowledge of groundwater diversions in Dutch Bill Creek watershed. Other groups have collected stream depth measurements at multiple locations on Dutch Bill Creek, but this data are not continuous or readily available.

As of January 11, 2016, informational order responses have been submitted for 1,197, or approximately 86 percent, of parcels and water suppliers in the Dutch Bill Creek watershed. According to these informational order responses, approximately 12.7 percent of parcels and water suppliers are solely supplied by a groundwater diversion (groundwater well), approximately 1.1 percent of parcels are solely supplied by a surface water diversion, approximately 46.5 percent of parcels are solely served by a water supplier, approximately 4.0 percent of parcels are supplied by multiple sources of water, approximately 1.4 percent of parcels receive contract water, and approximately 34.3 percent of parcels have no water source available. State Water Board staff continues to follow up with landowners in and suppliers of water from the Dutch Bill Creek watershed who have not yet submitted a response to the informational order, or who have submitted incomplete information under the informational order. Please refer to Attachment 28 for a map showing the Dutch Bill Creek watershed parcels with no responses and parcels with incomplete responses.

### **Green Valley Creek**

Green Valley Creek is a tributary to the Russian River, located in Sonoma County. The Green Valley Creek watershed spans approximately 38 square miles, and the watershed ranges in

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<sup>6</sup> A riparian water right becomes inactive when a diverter with a riparian claim is no longer actively diverting water. Riparian water rights are not lost due to periods of inactivity.

<sup>7</sup> Unspecified water rights are undetermined water rights associated with a State Water Board enforcement investigation.

elevation from 23-925 feet (USGS, 2015). Mean annual precipitation in the Green Valley Creek watershed is 45 inches (USGS, 2015). The Green Valley Creek watershed is almost entirely privately owned (CDFG, 2006a), and common land uses include: apple and pear orchards, vineyards, livestock pasture, and rural development (DWR, 1999; CDFG, 2006a; Gold Ridge Resource Conservation District, 2013). The watershed's topography includes low-gradient alluvial valleys in the lower watershed and steep terrain in the upper watershed, including hillsides with gradients above 80 percent (Gold Ridge Resource Conservation District, 2013). The underlying geology of the watershed is dominated by the Franciscan Formation and Wilson Grove Formation (Laurel Marcus & Associates, 2003). The Green Valley Creek watershed's climate is characterized as Mediterranean, with frequent fog and milder temperatures in the forested uplands due to its proximity to the Pacific Ocean (Gold Ridge Resource Conservation District, 2013). Major tributaries to Green Valley Creek include Atascadero Creek, Purrington Creek, and Harrison Creek (CDFG, 2006a).

Agricultural activities, rural development and other land use activities (e.g., timber harvest, removal of riparian vegetation, road construction) have altered the watershed's physical characteristics (Gold Ridge Resource Conservation District, 2013) and have contributed to CCC coho salmon habitat degradation. In addition to land use changes, summer diversions, including near-stream groundwater withdrawals, have negatively impacted juvenile CCC coho salmon that rear in the Green Valley Creek watershed during the summer months (Gold Ridge Resource Conservation District, 2013). Based on monitoring data collected by the Gold Ridge Resource Conservation District from 2009-2013, water quality concerns in the Green Valley Creek watershed during the summer months include: low flows, high water temperatures, and low dissolved oxygen levels (Gold Ridge Resource Conservation District, 2013). According to studies conducted by the Gold Ridge Resource Conservation District, increased summer flows would likely improve temperature and dissolved oxygen conditions in the Green Valley Creek watershed (Gold Ridge Resource Conservation District, 2013).

In 2006, NMFS designated Green Valley Creek as critical habitat for CCC steelhead (50 C.F.R. § 226.211 (2006)). Green Valley Creek, Atascadero Creek, and Purrington Creek are considered important salmonid streams in the Russian River basin by CDFW and NMFS (GRRCD, 2013). The upper watershed, including Upper Green Valley Creek and Purrington Creek, provides favorable CCC coho salmon spawning and rearing habitat (Brown and Moyle, 1991; CDFG, 2006a, CDFG, 2006b). In a 2001 fish survey, Green Valley Creek was one of only three Russian River tributaries observed by CDFW to contain CCC coho salmon (CDFG, 2002). In more recent years, during the summers of 2010-2014, juvenile CCC coho salmon have been documented in Green Valley Creek through a combination of snorkel surveys and downstream migrant trapping. (UCCE/CA Sea Grant, 2015). Spawner surveys and PIT-tag detections have documented adult CCC coho salmon in Green Valley Creek during the spawning period from the 2010/2011 winter season through the 2015/2016 winter season (UCCE/CA Sea Grant, 2016; UCCE/CA Sea Grant, 2015). As of February 17, 2016, at least five CCC coho salmon redds and at least four CCC steelhead redds have been observed in the Green Valley Creek watershed during winter 2015/2016 (UCCE/CA Sea Grant, 2016). In addition, as of February 17, 2016, at least three adult CCC coho salmon returners been

observed in the Green Valley Creek watershed during winter 2015/2016 (UCCE/CA Sea Grant, 2016). Juvenile CCC steelhead are also consistently documented in the Green Valley Creek watershed (CDFG, 2006a). According to studies conducted by Gold Ridge Resource Conservation District, factors which negatively impact CCC coho salmon populations in the Green Valley Creek watershed include: low summer flows, lack of riparian cover, lack of instream habitat complexity, summer surface water diversions, and near-stream groundwater withdrawals (GRRCD, 2013). Information on adult CCC steelhead in Green Valley Creek is limited; however, at least three adult CCC steelhead spawners have been observed in the Green Valley Creek watershed during winter 2015/2016 through February 17, 2016 (UCCE/CA Sea Grant, 2016). In 2014, UCCE/CA Sea Grant observed 1,131 juvenile CCC steelhead on Green Valley Creek (see Attachment 16; UCCE/CA Sea Grant, 2014m). In 2015, UCCE/CA Sea Grant staff estimated 2,948 juvenile CCC coho salmon (2,294 YOY coho salmon and 654 parr coho salmon) and 2,290 juvenile CCC steelhead (2,086 YOY steelhead and 204 parr steelhead) were present in Green Valley Creek (Obedzinski et al., 2016). These 2015 estimates are based on an expanded count of actual observations.

As mentioned in the Dutch Bill Creek watershed description, O'Connor Environmental, Inc. recently developed a hydrologic model and related study of the Dutch Bill Creek and Green Valley Creek watersheds. The study identified stream reaches in Dutch Bill Creek and Green Valley Creek that would benefit from instream habitat improvement projects, stream reaches where flow augmentation projects would enhance instream habitat conditions, and stream reaches that are potentially impacted by diversions (Gold Ridge Resource Conservation District, 2016). It is anticipated that a technical report detailing the study results will be available to the public in late March 2016 (S. Cantor, Gold Ridge Resource Conservation District, personal communication, March 2016).

CDFW has identified a reach of interest and corresponding upper portion of the watershed for CCC coho salmon rearing in the Green Valley Creek watershed. The upper portion of the watershed encompasses 10.2 square miles, and is defined as the portion of the watershed upstream of the confluence with Atascadero Creek at the Latitude/Longitude of 38.44841°N and 122.88697°W (Gray, 2015; See Attachments 4 and 25).

As of February 1, 2016, there are 44 active water rights, in eWRIMS, records located in the Green Valley Creek watershed, including: 17 appropriative water rights, four domestic registrations, 14 riparian claims, one pre-1914 appropriative water right claim, six inactive records, two non-jurisdictional<sup>8</sup> records, one unspecified record, and five statements- other<sup>9</sup>. The 44 water rights for which annual reports are available have a total average (2010-2013) annual reported demand of approximately 156 acre-feet. The reported beneficial uses in the

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<sup>8</sup> Non-jurisdictional records are those not subject to the permitting authority of the State Water Board, such as collection of sheetflow.

<sup>9</sup> Statements- other are Statements of Diversion and Use which are filed for a diversion while an application for an appropriative or domestic water right is being prepared by the applicant or reviewed by the Division of Water Rights.

watershed are irrigation, domestic, stock watering, fire protection, recreational, aquaculture, frost protection, heat control, and fish and wildlife preservation and enhancement uses. Twelve of the 44 active water rights claim domestic as a beneficial use. Water supply and diversions in the Green Valley Creek watershed are governed by a series of Water Rights Orders and Water Rights Decisions, and surface water in the watershed is fully appropriated between June 15 and October 31 (State Water Resources Control Board, 1998). Water demand is considered high within the Green Valley watershed, and the greatest surface water demand is associated with domestic and agricultural uses (GRRCD, 2013). Summer flows in lower Green Valley Creek are exacerbated by summer diversions, and instream flows average just 1.0-1.5 cfs (CDFG, 2006a). There are no readily available real-time USGS or DWR flow records for the Green Valley Creek watershed. Other groups have collected stream depth measurements at multiple locations on Green Valley Creek, but this data are not continuous or readily available.

As of January 11, 2016, informational order responses have been submitted for approximately 5,134, or 91 percent, of parcels and water suppliers in the Green Valley Creek watershed. According to these informational order responses, approximately 59.5 percent of parcels are solely supplied by a groundwater diversion (groundwater well), approximately 1.1 percent of parcels are solely supplied by a surface water diversion, approximately 24.0 percent of parcels are solely served by a water supplier, approximately 7.0 percent of parcels are supplied by multiple sources of water, approximately 0.4 percent of parcels receive contract water, and approximately 8.0 percent of parcels have no water source available. State Water Board staff continues to follow up with landowners in and suppliers of water from the Green Valley Creek watershed who have not yet submitted a response to the informational order, or who have submitted incomplete information under the informational order. Please refer to Attachment 29 for a map of the Green Valley Creek watershed showing parcels with no responses and parcels with incomplete responses.

### **Mark West Creek**

The Mark West Creek watershed is defined in section 876 (c)(1)(A) of the proposed regulation as USGS Watershed Boundary Dataset-Hydrologic Unit Code (HUC) 180101100706 for the purposes of this regulation. This definition includes all areas upstream of the confluence of Mark West Creek with the Laguna de Santa Rosa, as well as the main channel of Mark West Creek downstream of the Laguna de Santa Rosa to the confluence with the Russian River<sup>10</sup>. The Mark West Creek watershed (HUC 180101100706) spans approximately 57 square miles and ranges in elevation from 150 to 2,400 feet (USGS, 2004, cited in SRCD, 2008). The Mark West Creek watershed typically receives 37-51 inches of annual precipitation, which consists primarily of rainfall (SRCD, 2008). The Mark West watershed is underlain by the Franciscan Complex, Coast Range ophiolite, and the Great Valley sequence (USGS, 2004, cited in SRCD, 2008).

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<sup>10</sup> The above definition excludes Windsor Creek, the Laguna de Santa Rosa and their tributaries, though these are part of the larger Mark West Creek watershed (HUC 1801011007), which spans approximately 254 square miles.

Mark West Creek is recognized as a historical CCC coho salmon stream (Brown and Moyle, 1991). In 2006, NMFS designated Mark West Creek as critical habitat for CCC steelhead (50 C.F.R. § 226.211 (2006)). CDFW and NMFS recognize the Mark West Creek watershed for its superior CCC coho salmon spawning and rearing habitat. In recent years, CCC coho salmon have been recorded in Mark West Creek (Steiner Environmental Consulting, 1996; CDFG, 2002; SRCD, 2008), although observed CCC coho salmon populations are reportedly small (Steiner Environmental Consulting, 1996). As of February 17, 2016, at least one CCC coho salmon redd and at least three CCC steelhead redds were observed in the Mark West Creek watershed during winter 2015/2016 (UCCE/CA Sea Grant, 2016). In addition, as of February 17, 2016, at least one adult CCC coho salmon and at least four adult CCC steelhead were observed in the Mark West Creek watershed during winter 2015/2016 (UCCE/CA Sea Grant, 2016). CDFW observed CCC coho salmon in Mark West Creek in 2001, but not during surveys in 2000 or 2002 (CDFG, 2004). Juvenile CCC coho salmon have also been documented in Mark West Creek including all summers spanning 2011-2015 (Obedzinski et al., 2016; UCCE/CA Sea Grant, 2015). CDFW has also observed juvenile CCC steelhead rearing in Mark West Creek during multiple surveys from the 1960s-2000s (CDFG, 2002; SRCD, 2008). In 2015, UCCE/CA Sea Grant staff estimated 76 juvenile CCC coho salmon (44 YOY coho salmon and 32 parr coho salmon) and 2,110 juvenile CCC steelhead (1,508 YOY steelhead and 602 parr steelhead) were present in Mark West Creek (Obedzinski et al., 2016). These 2015 estimates are based on an expanded count of actual observations.

Although Mark West Creek is characterized as relatively undeveloped (Baumgarten et al., 2014; Steiner Environmental Consulting, 1996), a variety of land use changes have contributed to changes in stream conditions. Historic land uses included ranching and timber harvesting (Sotoyome Resource Conservation District, 2008), and current land use patterns include forest and chaparral, grassland/pasture, residential areas, vineyards, orchards, and other miscellaneous land uses (DWR, 1999; Sotoyome Resource Conservation District, 2008). There is also evidence that significant changes have occurred in the channel alignment of lower Mark West Creek over the past 150 years as a result of anthropogenic diversions and, possibly, due to natural course migration (Baumgarten et al., 2014). These channel alignment changes have altered flow and sediment dynamics in lower Mark West Creek, and have resulted in impacts to ecological and geomorphic functioning (Baumgarten et al., 2014). Lower Mark West Creek is characterized by high rates of sediment deposition and poor quality fish habitat, which is a result of these changes in channel alignment (Baumgarten et al., 2014). Alterations to the lower watershed may have impacts on juvenile CCC coho salmon and juvenile CCC steelhead out-migration as well as migrating adult CCC coho salmon and adult CCC steelhead.

CDFW has identified a reach of interest and corresponding upper portion of the watershed for CCC coho salmon rearing in the Mark West Creek watershed. The upper portion of the watershed encompasses 36.2 square miles, and is defined as the portion of the watershed upstream of the confluence with an unnamed tributary that flows parallel to western Riebli Road at the Latitude/Longitude of 38.5066°N and 122.72607°W (Gray, 2015; See Attachments 4 and 26).



As of February 1, 2016, there were 84 active water rights records located in the Mark West Creek watershed, including: 50 appropriative water rights, six domestic registrations, 23 riparian claims, two pre-1914 appropriative water rights claims, three statements- other, and seven inactive records. The 91 water rights for which annual reports are available have a total average (2010-2013) annual reported demand of approximately 515 acre-feet. The reported beneficial uses in the watershed are irrigation, domestic, stock watering, recreational, heat control, frost protection, fire protection, fish and wildlife preservation and enhancement, and other. Nine of the 84 active water rights claim domestic use as a beneficial use. Significant surface water and groundwater diversions occur in the Mark West Creek watershed during the summer, which can cause the stream to become intermittent (Merritt-Smith Consulting, 2003, cited in Sotoyome Resource Conservation District, 2008). Groundwater extractions in the Mark West Creek watershed appear to be occurring at an unsustainable rate, and the depth to water in new groundwater wells increased by about 100 percent over the period of 1940-1990 (Sotoyome Resource Conservation District, 2008). USGS maintains one streamflow gauge (USGS #11466800) at Mark West Creek near Mirabel, which has recorded real-time streamflows since 2006. Over the period of record, the gauge has recorded highly variable streamflow within the watershed, including winter peak flows of up to 7,200 cfs, as well as very low to zero summer flows (USGS, 2013).

As of January 11, 2016, informational order responses have been submitted for approximately 4,303, or 88 percent, of parcels and water suppliers in the portion of Mark West Creek watershed subject to the informational order. According to these informational order responses, approximately 28.0 percent of parcels are solely supplied by a groundwater diversion (groundwater well), approximately 1.1 percent of parcels are solely supplied by a surface water diversion, approximately 53.3 percent of parcels are solely served by a water supplier, approximately 5.6 percent of parcels are supplied by multiple sources of water, approximately 0.9 percent of parcels receive contract water, and approximately 11.1 percent of parcels have no water source available. State Water Board staff continues to follow up with landowners in and suppliers of water from the Mark West Creek watershed who have not yet submitted a response to the informational order, or who have submitted incomplete information under the informational order. Please refer to Attachment 30 for a map of the Mark West Creek watershed showing parcels with no responses and parcels with incomplete responses.

### **Mill Creek**

Mill Creek is a tributary to Dry Creek, which is a tributary to the Russian River. The Mill Creek watershed spans approximately 23 square miles in Sonoma County (USGS, 2015). Mean annual precipitation in the Mill Creek watershed is 53 inches, and the watershed ranges in elevation from 73-1,931 feet (USGS, 2015). Major tributaries to Mill Creek include Wallace Creek, Felta Creek, and Palmer Creek. Nearly the entire Mill Creek watershed includes irrigated lands (DWR, 1999). Major crop types in the Mill Creek watershed include: vineyards, flowers, and Christmas tree farms (DWR, 1999). Surficial geology in the Mill Creek watershed consists primarily of sandstones associated with the Franciscan Complex (CDMG, 1982).

In 2006, NMFS designated Mill Creek as critical habitat for CCC steelhead (50 C.F.R. § 226.211 (2006)). NMFS and CDFW consider Mill Creek an important salmonid stream in the Russian River basin. In recent years, there are numerous observations of coho salmon in Mill Creek and its tributaries: Wallace Creek, Felta Creek, and Palmer Creek. CDFW surveyed Mill Creek in 2000-2002, and did not observe CCC coho salmon in Mill Creek or any other stream in the Dry Creek watershed. (CDFG, 2004). However, juvenile CCC coho salmon have been documented consistently through a combination of snorkel surveys and migrant trapping in the Mill Creek watershed during the 2005-2015 period (Obedzinski et al., 2016; UCCE/CA Sea Grant, 2015). Many of these juvenile CCC coho salmon observations occurred in Felta Creek. Adult CCC coho salmon have also been documented in the Mill Creek watershed via spawning surveys and PIT tag detections in winters spanning the period of 2006/2007 winter through 2015/2016 winter (UCCE/CA Sea Grant, 2016; UCCE/CA Sea Grant, 2015). As of February 17, 2016, at least 11 CCC coho salmon redds and at least 10 CCC steelhead redds were observed in the Mill Creek watershed during winter 2015/2016 (UCCE/CA Sea Grant, 2016). In addition, as of February 17, 2016, at least six adult CCC coho salmon returners and at least six adult CCC steelhead were observed in the Mill Creek watershed during winter 2015/2016 (UCCE/CA Sea Grant, 2016). In 2014, UCCE/CA Sea Grant observed 1,745 juvenile CCC steelhead on Mill Creek and its tributaries (see Attachment 18; UCCE/CA Sea Grant, 2014o). In 2015, UCCE/CA Sea Grant staff estimated 686 juvenile CCC coho salmon (594 YOY coho salmon and 92 parr coho salmon) and 5,378 juvenile CCC steelhead (4,776 YOY steelhead and 602 parr steelhead) were present in Mill Creek (Obedzinski et al., 2016). These 2015 estimates are based on an expanded count of actual observations. As discussed above, in May 2015, CDFW staff, with the assistance of UCCE/CA Sea Grant personnel, rescued juvenile CCC coho and CCC steelhead in the Mill Creek watershed.

CDFW has identified a reach of interest and corresponding upper portion of the watershed for CCC coho salmon rearing in the Mill Creek watershed. The upper portion of the watershed encompasses 22.1 square miles, and is defined as the portion of the watershed below the confluence with Felta Creek at the Latitude/Longitude of 38.58098°N and 122.88306°W (Gray, 2015; See Attachments 4 and 27).

As of February 1, 2016, there were 52 active water rights records in the Mill Creek watershed, including: 23 appropriative water rights, one stockpond certificate, five domestic registrations, 18 riparian claims, two pre-1914 appropriative water rights claims, three statements- other, and six inactive records. The 50 water rights for which annual reports are available have a total average (2010-2013) annual reported demand of approximately 233 acre-feet. The reported beneficial uses in the watershed are irrigation, domestic, stock watering, recreational, fish and wildlife preservation and enhancement, aquaculture, fire protection, frost protection, heat control, and industrial. Twenty-eight of the 52 active water rights claim domestic as a beneficial use. There are no readily available real-time USGS or DWR flow records for the Mill Creek watershed. Other groups have collected stream depth measurements at multiple locations on Mill Creek, but these data are not continuous or readily available.

As of January 11, 2016, informational order responses have been submitted for approximately 304, or 88 percent, of parcels and water suppliers in the Mill Creek watershed. According to

these informational order responses, approximately 42.8 percent of parcels are solely supplied by a groundwater diversion (groundwater well), approximately 13.2 percent of parcels are solely supplied by a surface water diversion, approximately 5.3 percent of parcels are solely served by a water supplier, approximately 16.4 percent of parcels are supplied by multiple sources of water, approximately 0.3 percent of parcels receive contract water, and approximately 22.0 percent of parcels have no water source available. State Water Board staff continues to follow up with landowners in and suppliers of water from the Mill Creek watershed who have not yet submitted a response to the informational order, or who have submitted incomplete information under the informational order. Please refer to Attachment 31 for a map of the Mill Creek watershed showing parcels with no responses and parcels with incomplete responses.

### **Public Water Suppliers**

Forty-seven (47) water suppliers provide water to the public within the four priority watersheds. Seven water suppliers are publically owned, four of which are schools or school districts. Five water suppliers (Camp Meeker Water System, Sweetwater Springs County Water District, Occidental Community Services District, Forestville County Water District and Russian River County Water District) receive all water from outside the priority watersheds.

### **Dutch Bill Creek Watershed**

In the Dutch Bill Creek watershed, there are fourteen (14) water suppliers. The Camp Meeker Water System, the Sweetwater Springs County Water District, and Occidental Community Services District receive all water from outside the Dutch Bill Creek watershed. Two water suppliers, Occidental Community Services District and Sweetwater Spring Country Water District, are publically owned; all other water suppliers in the watershed are privately owned. The Sweetwater Springs County Water District has more than 3,000 service connections and is considered an urban water supplier pursuant to the State Water Board's Drought Emergency Water Conservation emergency regulation (Cal. Code Regs., tit. 23, §§ 863-66).

### **Green Valley Creek Watershed**

In the Green Valley Creek watershed, there are twenty-three (23) water suppliers. Forestville County Water District and the Russian River County Water District receive all water from outside the watershed and are both publically owned. There are five publically owned water suppliers, the two previously mentioned water districts and three schools. None of the water suppliers have more than 3,000 service connections or supply more than 3,000 acre-feet of water per year. Therefore, no water suppliers in the Green Valley Creek watershed are considered urban water suppliers under the State Water Board's Drought Emergency Water Conservation emergency regulation (Cal. Code Regs., tit. 23, §§ 863-66).

### **Mark West Creek Watershed**

In the Mark West Creek watershed, as defined in this proposed emergency regulation, there are nine (9) water suppliers. None of the water suppliers in the Mark West Creek watershed, as defined by this emergency regulation, receive all water from outside the watershed. All water suppliers in the Mark West Creek watershed, as defined by this emergency regulation, are privately owned and have 3,000 or fewer service connections and supply 3,000 or fewer acre-feet of water per year. Therefore, no water suppliers in the Mark West Creek watershed, as

defined in this emergency regulation, are considered urban water suppliers under the State Water Board's Drought Emergency Water Conservation emergency regulation (Cal. Code Regs., tit. 23, §§ 863-66).

### **Mill Creek Watershed**

In the Mill Creek watershed, there is only one (1) water supplier: the West Side Union School District. West Side Union School District is a publically owned water supplier that uses water sources from within the watershed. West Side Union School District does not have more than 3,000 service connections or supply more than 3,000 acre-feet of water per year. Therefore, no water suppliers in the Mill Creek watershed, as defined in this proposed emergency regulation, are considered urban water suppliers under the State Water Board's Drought Emergency Water Conservation emergency regulation (Cal. Code Regs., tit. 23, §§ 863-66).

## **Informative Digest**

### **Summary of Existing Laws and Regulations**

A general description of water rights law is set forth above, under "water rights framework" including a discussion of the water right priority system and the constitutional prohibition against the waste, unreasonable diversion, unreasonable method of diversion, or unreasonable use of water. This section describes the State Water Board's existing drought emergency regulations governing water conservation and informational orders.

Under existing law, end users of potable water are prohibited from taking certain actions, including irrigating outdoor ornamental landscapes in a manner that causes runoff or within 48 hours of measurable rainfall, applying potable water to driveways and sidewalks, and washing motor vehicles with potable water or with a hose that is not fitted with an automatic shut-off nozzle (Cal. Code Regs., tit. 23, § 864). The existing Drought Emergency Water Conservation emergency regulation further requires all self-supplied commercial, industrial, and institutional water users to reduce potable water usage. Additional requirements for public water suppliers to reduce potable usage under the regulation do not apply to individual diversions that are either instead of or supplemental to public water supplies.

Under existing Water Code section 1051, the State Water Board has the authority to investigate all stream systems in the state. On December 1, 2015, the State Water Board readopted a drought emergency regulation that bolstered the State Water Board's informational order authority; that drought emergency authority is found at California Code of Regulations, title 23, section 879, subdivision (c). The December 1, 2015 drought emergency regulation on informational orders provides the State Water Board with an enforceable mechanism to investigate drought-related water right matters in response to four specific circumstances: 1) complaints of interference with water rights by other water right holders, diverters or users; 2) claims of previously unasserted riparian or pre-1914 rights in response to curtailment notices or investigations; 3) claims of a right to divert under a contract or water transfer not previously approved by or filed with the State Water Board; and 4) receipt of information that indicates actual or threatened waste, unreasonable use, unreasonable method of diversion, or unlawful

diversions. The regulation is focused on the ability to acquire information on specific known or alleged diversions for which there is some indication that the diversion may not be in accordance with water rights law.

### **Description and Effect of Proposed Regulation**

Proposed section 876 authorizes the State Water Board to issue informational orders to surface water and groundwater diverters and users to collect additional water user information in the Dutch Bill Creek, Green Valley Creek, portions of Mark West Creek, and Mill Creek watersheds. Proposed section 876, subdivision (c) defines the boundaries of the watersheds for purposes of applying the regulation. Proposed section 876, subdivision (e) authorizes the State Water Board to issue informational orders regarding surface water and groundwater diversions. Information collected through the issuance of informational orders will inform the State Water Board's understanding of total water demand and the influence of groundwater diversions on instream flows in the four tributary watersheds.

Proposed section 876, subdivision (f) requires that a diverter of a new surface water or groundwater diversion comply with any informational order issued for the particular watershed where the new diversion is located in a particular watershed prior to commencing the new diversion. This will prevent information gathered under the informational orders from becoming incomplete during the pendency of the emergency regulations, and will promptly inform the State Water Board of new diversions that have the potential to impact CCC salmon or CCC steelhead habitat. Proposed section 876, subdivision (g) clarifies that electronic notice is sufficient for notices and updates regarding the emergency regulations. This allows the decisions by the Deputy Director regarding informational orders and information reporting requirements for new diversions to be communicated efficiently with the affected parties.

Information collected through the issuance of informational orders will be used to inform future State Water Board management decisions. Collection of a complete and accurate data set in the four watersheds will help to better inform future habitat protection actions in the short term, if the drought continues this year or in future years. This dataset would allow the State Water Board to consider a broader range of options, including more tailored options, in response to ongoing or future drought conditions. Such information and data could provide the State Water Board with the ability to better understand the effects of curtailments of certain uses, identify outliers to assess whether requiring changes would provide the benefits being sought by its actions, and better understand how the various uses (e.g., domestic, agriculture, etc.) in these watersheds impact streamflow. A more complete data set could also be used to identify and implement actions by CDFW and local agencies, including Groundwater Sustainability Agencies implementing the Sustainable Groundwater Management Act.

### **Proposed Section 876, Subdivision (e)**

Proposed section 876, subdivision (e) authorizes the State Water Board to collect information on surface water and groundwater diversions in Dutch Bill Creek, Green Valley Creek, portions of Mark West Creek, and Mill Creek watersheds. Proposed section 876, subdivision (e) extends the provisions of the drought emergency regulation regarding informational orders (California Code of Regulations, title 23, section 879, subdivision (c)) which authorizes the State Water

Board to issue informational orders to surface water diverters to investigate certain drought-related water right matters. Proposed section 876, subdivision (e) authorizes the State Water Board to issue informational orders to all landowners in and suppliers of water from the watersheds regarding surface and groundwater diversions and use in the Dutch Bill Creek, Green Valley Creek, portions of Mark West Creek, and Mill Creek watersheds, without first meeting the requirements in section 879 that allow for such orders to specific diverters under certain circumstances that suggest the diversions may not be in compliance with the law. While it is clear that the sum of diversions has an unreasonable impact on the fishery, there was, prior to adoption and implementation of the prior version of this emergency regulation, a dearth of information on diversions and extractions; the information submitted so far pursuant to informational orders issued under the prior version of this emergency regulation is incomplete and currently insufficient to allow for its adequate use. This means that it is not currently possible to identify diverters, water uses and amounts or to make the best-informed determinations regarding the potential impacts of various diversions on streamflows. Information collected through the issuance of informational orders and follow up on existing orders will inform the State Water Board's understanding of total water demand and groundwater-surface water connectivity in the four tributary watersheds.

Under the existing drought emergency regulation regarding informational orders (section 879, subdivision (c)), the State Water Board may issue an informational order requiring the water right holder, surface water diverter, or surface water user to provide additional information related to a diversion or use, including: the claim of right, property patent date, date of initial appropriation, diversions made or anticipated during the current drought year, compliance with transfer law if the transfer diversion was not subject to approval of the State Water Board or the DWR, or any other information relevant to authenticating the right or forecasting use and supplies in the current drought year, in certain circumstances.

Groundwater-surface water connectivity is a significant factor in surface water impacts from diversions in the Russian River watershed due to the region's geology. Although the State Water Board lacks key information on groundwater diversions in the Russian River watershed, it is clear that groundwater pumping constitutes a large portion of total water diversions in the Dutch Bill Creek, Green Valley Creek, Mark West Creek, and Mill Creek watersheds. In these four tributary watersheds, groundwater withdrawals can have a significant effect on surface water flow, and surface water and groundwater diversions have the potential to significantly affect streamflows in the Russian River basin on a short-term basis (State Water Resources Control Board, 2011). The State Water Board needs the information on the number of groundwater wells, the location of groundwater wells, the depth of groundwater wells, and the demand for groundwater in these Russian River watersheds to assess the type of impact a groundwater diversion may have on the surface stream. Informational orders addressing both groundwater and surface water are necessary to fill in the data gap.

In 2010 and 2011, the State Water Board and the Center for Ecosystem Management and Restoration installed stream gauges in the four priority tributaries. However, streamflow data from prior years is not available for these tributaries, precluding comparison between current

flows and historical, unimpaired flows. With the limited availability of data, the best available information must be used to generate unimpaired flow and depletion estimates.

The State Water Board is collaborating with the University of California- Davis (UC Davis) to develop the Drought Water Rights Allocation Tool (DWRAT) for several major watersheds in California, including the Russian River watershed. This water supply and demand projection tool will help the State Water Board determine when curtailments are needed due to limited water supply, and will aid water users in determining how much water is available to divert under their water right priority, on a real-time basis. While still in development, DWRAT has entered the testing phase for the Russian River watershed. The Russian River DWRAT model estimates water supply on a daily basis for each of the Russian River watershed's 44 HUC-12 sub-watersheds. Two of these 44 HUC-12 sub-watersheds are the priority tributary watersheds of Green Valley Creek and Mill Creek.

To generate water supply information, DWRAT requires estimates of unimpaired surface flows for each HUC-12 sub-watershed. UC Davis generated unimpaired flows for the output of each Russian River HUC-12 sub-watershed based on an existing dataset of modeled unimpaired flows for the Russian River at the City of Healdsburg. The National Weather Service uses data from the USGS "Russian River near Healdsburg, CA" streamflow gauge (station number 11464000), to estimate unimpaired flows at this location. UC Davis scaled the National Weather Service estimates of unimpaired flows for the Russian River at Healdsburg to each HUC-12 sub-watershed in the Russian River basin using numerical scaling factors. These numerical scaling factors were generated through a Random Forests statistical modeling technique, which considered data from USGS reference streamflow gauges and watershed predictor variables (climate, topography, etc.). The resulting numerical scaling factors are specific to each HUC-12 sub-watershed and vary by month.

Using UC Davis' DWRAT scaling factors, the State Water Board estimated monthly unimpaired flows for the Green Valley Creek and Mill Creek HUC-12 sub-watersheds, based on estimated unimpaired flows recorded at the National Weather Service's Russian River near Healdsburg streamflow gauge data. Dutch Bill Creek and Mark West Creek watersheds were not used because the DWRAT modeling effort defined these watershed areas differently (larger) than they are defined in the proposed emergency regulation. The State Water Board has compared the modeled monthly unimpaired flows to the available gauged flows in the Russian River priority tributary watersheds to estimate total water demand in the Russian River priority tributary watersheds. Total water demand includes both surface water and groundwater diversions hydraulically connected to surface water, and includes depletions which are not accounted for in the surface water diversion records.

The HUC-12 unimpaired flows predicted by DWRAT, coupled with the gauged streamflow and reported diversion data, represent the best available water supply and demand information in the Green Valley Creek and Mill Creek watersheds. The year 2011 was selected for water supply and water demand comparisons as it is the most recent year for which the unimpaired flow dataset, streamflow gauge dataset and the reported water demand dataset are available.

However, incomplete streamflow records eliminated several summer months from the analysis for both Green Valley Creek and Mill Creek. The results of the analysis, given the implicit uncertainties in the hydrology model and eWRIMS database, indicate that a significant portion of the modeled unimpaired flow cannot be accounted for by the gauged streamflow data and diversion data alone. The hypothesis is that the “unaccounted for” depletions (which range from 30%-92% of modeled monthly unimpaired flows) can be attributed to: natural streamflow losses to the groundwater table; groundwater diversions; depletion of surface flows from surface diversions and accelerated losses to the groundwater table from cumulative groundwater depletion; and mis-reported or unreported surface water diversions. Given the limited available information, it is impossible to estimate the relative contribution of each of these elements to the overall depletion estimates.

The State Water Board recognizes that the DWRAT hydrology model lacks statistical confidence when estimating streamflows for periods of low flow and when estimating flows in basins where interactions with groundwater may play a significant role in streamflow patterns. However, these estimates provide a reasonably likely picture of the hydrology of the watersheds and the potentially significant impacts of groundwater diversions, when compared to the gauged measurements plus the reported diversion data. Additionally, the unimpaired flow data were estimated at the outlet of the HUC-12 sub-watersheds, whereas the gauges only account for 92% of the watershed area in the Green Valley Creek watershed and 95% of the watershed area in the Mill Creek watershed. Therefore, the DWRAT hydrology model over-estimates unimpaired flows. The unimpaired flow data would be higher than the data at the gauge because the unimpaired flow data covers a greater area. A high degree of confidence can be placed in the gauged streamflow data and a moderate- to high- degree of confidence can be placed in the reported diversion data, though some minor inconsistencies exist in the diversion dataset.

To make more informed, timely decisions the State Water Board requires further information to better determine the specific nature of streamflow depletions. This information is essential to evaluate the potential impacts of surface and groundwater diversions on stream flows that are necessary for threatened and endangered species in the priority tributaries. Information is also necessary to determine what demand management options might be available and to implement those options.

Proposed section 876, subdivision (e) authorizes the State Water Board to issue informational orders to parties in the priority watersheds to get, or complete, this needed information. It is anticipated that the State Water Board will simultaneously collect information on surface water and groundwater diversions through the issuance of an informational order. The regulation authorizes issuance of orders to all landowners in and suppliers of water from the four tributary watersheds, with the required information to be submitted through an informational order response form. The form would include questions regarding groundwater and surface water diversions and use. Landowners who do not divert water from a well or a surface water diversion would check the box on the online form to certify that they do not divert water from a



well or surface water diversion. Landowners who receive water from a public water system may be asked to report on which public water system currently provides their water.

If an informational order is issued under proposed section 876, subdivision (e), surface water diverters will be required to submit information on surface water diversions, including, but not limited to: primary owner contact information, type and basis of claim, uses of water, location of surface water diversion, location of surface water use, and amount of surface water diverted. This order could include requests for information on: permit/license or statement number; types of beneficial uses (e.g., domestic, irrigation, etc.); estimated monthly diversions; estimated/projected monthly diversions; estimated maximum rate of diversion; and volume of storage tank or reservoir. Landowners with riparian claims may also be required to provide their patent date. Landowners with pre-1914 appropriative claims and riparian claims may also be required to provide the claimed priority date; year of first use; and parcel numbers for property served.

If an informational order is issued under proposed section 876, subdivision (e), landowners would be required to submit information on groundwater diversions including: primary owner contact information; type and basis of claim; uses of water; location of groundwater diversion; location of groundwater use; and amount of groundwater diverted; well completion report number; date of well completion; date of first use; reference point elevation (if known); sanitary seal depth; screened interval; types of beneficial uses (e.g., domestic, irrigation, etc.); estimate monthly diversions; projected monthly diversions; maximum rate of diversion (e.g., pump capacity); and volume of storage tank or reservoir.

The State Water Board may also require landowners to provide additional information relevant to forecasting use and impacts to the surface streams under current drought conditions. For example, landowners may be asked whether they currently receive water from a public water system or source other than a surface water or groundwater diversion, or whether they receive contract water. Surface water diverters may be asked additional questions related to surface water use, such as whether they currently coordinate stream diversions with other landowners. Groundwater diverters may be asked to provide additional information regarding groundwater use and local geology. For example, groundwater diverters may be required to provide information on underlying geology, as specified in well completion reports.

Groundwater informational orders, coupled with surface water informational orders, will provide the State Water Board with the information it needs to estimate total water demand in the Dutch Bill Creek, Green Valley Creek, portions of Mark West Creek, and Mill Creek watersheds. After informational order responses have been submitted to the State Water Board, supply and demand data may be compared to determine when, and to what priority level, curtailments should occur in the four Russian River tributary watersheds, if necessary. The State Water Board may use the information submitted under any informational order to evaluate water demand, and ensure water availability for senior water right holders, health and safety needs and minimum flow are maintained for the summer rearing and late-fall migration periods. The

information may also be needed to identify non-curtailment options for protecting needed surface flows in these tributaries.

Informational orders were issued to 10,123 parties (covering 12,325 parcels or water suppliers) within the four priority tributaries in August and September 2015. As of February 9, 2016, the State Water Board has received partial or complete information for 11,181 parcels or water suppliers, corresponding to an overall response rate of 90.7 percent. Of the outstanding 1,144 parcels and water suppliers, the Board has received returned mail for 419 indicating that the informational order did not reach the intended party, with an additional 53 parcels having changed ownership prior to the informational order being issued. Approximately 345 parcel owners have not responded to the informational order or any follow-up communications and are currently subject to enforcement action, while an additional approximately 182 informational orders are with the United States Postal Service who is attempting delivery. The remainder of the outstanding informational orders are currently being addressed by staff in various stages of attempting contact or assisting landowners with data submission. Ongoing data collection efforts are focused on collecting as much of the outstanding information as possible, using enforcement actions (for non-responsive parties) and clerical actions (to address new owners and updated addresses). Preliminary data analysis indicates that there is also a large subset of parcel owners and water suppliers (approximately 1,750 parcel and water supplier submissions) who responded to the informational order, but did not submit complete or accurate information, including, but not limited to: inaccurate well locations; no 2014 and 2015 water use estimates; no beneficial uses of water identified; and missing water sources (i.e., multiple water sources identified, but only information provided for one water source). Additional follow-up with parties who submitted incomplete or inaccurate data will be necessary in order to get a more complete dataset. Attachments 28-31 display the parcels in each watershed with no information or incomplete information. Readoption of the informational order portion of the emergency regulation will allow the State Water Board to collect more comprehensive water source and use information in order to prepare for ongoing drought, should recent improvement in flow conditions in the four tributaries not continue, or for future dry conditions.

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Cal.App.4th 1463

## **Mandate on Local Agencies or School Districts**

The State Water Board has determined that proposed section 876 does not impose a new mandate on local agencies or school districts. The regulation is generally-applicable law.

## **Suspension of California Environmental Quality Act**

On April 24, 2014, Governor Edmund G. Brown Jr. issued a second Executive Order addressing the drought emergency, which, inter alia, suspended the California Environmental Quality Act (CEQA) as applied to the State Water Board's adoption of emergency regulations to "prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water, to promote water recycling or water conservation, and to require curtailment of diversions when water is not available under the diverter's priority of right."

## **Cost Estimate**

The fiscal effects of the proposed emergency regulation relevant to Government Code section 11346.5, subdivision (a)(6) are the costs that would be incurred by state and local government agencies to respond to any requests for additional information the State Water Board may require that was not submitted, or was incomplete, pursuant to prior informational orders, and costs to respond to any new informational orders.

The total cost for all local (including city, county, schools and publically-owned water suppliers) and state agencies to provide any additional information requested by the State Water Board under prior informational orders and responses to any new informational orders is estimated to be \$54,275 (\$2,275 for the State of California, \$3,412.50 for local schools and school districts, and \$48,587.50 for other local government entities). Attachment 1 provides more background information on the estimate.

There are not expected to be any other nondiscretionary costs or savings to local agencies from the regulation, nor is the regulation anticipated to result in costs or savings in federal funding to the State.

The State Water Board is the only agency that can implement this emergency regulation. As required by Government Code Section 11346.5, subdivision (a)(3)(D), the State Water Board has conducted an evaluation of this regulation and has determined that it is not inconsistent or incompatible with existing state regulations.



## **Attachment 1: Fiscal Impact Statement**

### **Summary**

The fiscal effects of the proposed emergency regulation relevant to Government Code section 11346.5, subdivision (a)(6) are the costs that would be incurred by state and local government agencies to respond to any requests for additional information the State Water Board may require pursuant to the prior informational orders and any new informational orders.

The total cost for all local (including city, county, schools and publically owned water suppliers) and state agencies to respond to additional information requested by the State Water Board under the proposed regulation is estimated to be \$54,275 (\$2,275 for the State of California, \$3,412.50 for local schools and school districts, and \$48,587.50 for other local government entities).

### **Fiscal Impact of Proposed Section 876 Subdivision (e)**

The potential fiscal impacts of the information orders issued pursuant to proposed section 876, subdivision (e) include the costs to local government agencies to complete and submit an informational order response form and supporting documentation and respond to any requests for additional information under prior informational orders or a new informational order.

To conservatively estimate the cost of the proposed regulation, the State Water Board determined the total number of state and local agency-owned parcels in the four priority tributaries and multiplied that number by an average time to complete the informational order response form and submit any supporting documentation, multiplied by an average staff cost per hour. The State Water Board conservatively estimates the average amount of time required to provide additional information requested by the State Water Board under the prior informational order or any new informational orders to be 2.5 hours per parcel or water supplier. This time estimate is based on assistance provided by State Water Board staff to parcel owners and water suppliers over the phone and in person in implementing the prior version of the emergency regulation. The average time to respond to Order WR 2015-0026-DWR: Order for Additional Information in the Matter of Diversion of Water from the Dutch Bill Creek, Green Valley Creek, portions of Mark West Creek, and Mill Creek Watersheds as defined in California Code of Regulations, Title 23, Section 876(c)(1) has varied between five minutes to two hours per parcel or water supplier. Therefore, the conservative estimate of one hour per parcel or water supplier was used for this fiscal analysis. In addition, the State Water Board included 1.5 hours for gathering the information required by an informational order on the assumption that state and local agencies would have already gathered most of the information that would be requested pertaining to the sources and use of water in response the Order WR 2015-0026-DWR.

The State Water Board has identified 31 state and local agencies, which received Order WR 2015-0026-DWR under the prior version of the emergency regulation. These state and local agencies own 334 parcels, identified via ParcelQuest, and may be required to fill out an

informational order response form or provide additional information for each parcel identified by unique assessor's parcel number. The State of California owns 14 parcels within the four priority watersheds and will therefore incur an estimated cost of \$2,275 (14 state owned parcels multiplied by \$65 per hour, multiplied by 2.5 hours). Local schools, school districts and water suppliers own 21 parcels within the four priority watersheds and will incur an estimated cost of \$3,412.50 (21 local schools, school districts, and water supplier-owned parcels multiplied by \$65 per hour, multiplied by 2.5 hours). Other local government entities, including but not limited to city and county agencies, own 299 parcels within the four priority watersheds and will incur an estimated cost of \$48,587.50 (299 local agency-owned parcels multiplied by \$65 per hour, multiplied by 2.5 hours). Therefore, the total cost estimated to all local (including city, county, schools and publicly-owned water suppliers) and state agencies to complete the informational order response form and submit the supporting documents is \$54,275 (334 local and state agency- and water supplier- owned parcels multiplied by \$65 per hour, multiplied by 2.5 hours).

**Attachment 2: February 19, 2016 California Department of Fish and Wildlife Letter  
to the State Water Resources Control Board**

State of California  
Department of Fish and Wildlife

**M e m o r a n d u m**

**Date:** February 19, 2016

**To:** Ms. Barbara Evoy, Deputy Director  
Division of Water Rights  
State Water Resources Control Board  
1001 I Street  
Sacramento, CA 95814

**From:** Sandra Morey, Deputy Director  
Ecosystem Conservation Division

**Subject: Request to Re-Adopt Emergency Regulations for an Informational Order to  
Better Support Listed Salmonids in Select Tributaries to the Russian River**

The California Department of Fish and Wildlife (CDFW) continues to support the current collaboration with local landowners, local resource conservation districts, the National Marine Fisheries Service (NMFS), and the State Water Resources Control Board (SWRCB) to address ongoing conditions resulting from the drought. The select tributaries to the Russian River contain Central California Coast (CCC) Coho salmon and CCC steelhead, which are listed under the Federal Endangered Species Act (ESA) as endangered and threatened, respectively. Coho salmon are also listed as Endangered under the California Endangered Species Act (CESA). Low flow conditions in tributaries of the Russian River resulted in significant declines in salmonid production and survival during the 2014 and 2015 season.

On May 28, 2015 CDFW recommended that the SWRCB implement Emergency Regulations: to (1) issue an informational order to determine the extent of current diversion operations in each watershed; and, (2) immediately implement conservation measures to limit the amount of water extracted from watersheds during the 2015 drought that track conservation measures the SWRCB has required elsewhere. On June 17, 2015, the SWRCB adopted an emergency regulation that included both enhanced conservation measures and required certain information regarding diversions in four priority Russian River tributary watersheds. The Office of Administrative Law approved the emergency regulation and the emergency regulation went into effect on July 6, 2015. The emergency regulation is effective for 270 days. On August 24, 2015, the SWRCB issued an Informational Order for the four Russian River tributaries pursuant to the emergency regulation.

Barbara Evoy, Deputy Director  
February 19, 2016  
Page 2

Data collected to date pursuant to the Informational Order has been helpful toward obtaining a better understanding of water diversions at certain times of the year, which will help better inform potential future actions. And, the collection of that data is not complete, and would be assisted by the re-adoption of the emergency regulation as it applies to the Informational Order.

CDFW will continue to coordinate with multiple stakeholders and SWRCB on outreach meetings in the subject watersheds and will continue to work with landowners to facilitate voluntary actions that will benefit instream resources. At this time, CDFW recommends that the SWRCB re-adopt the informational order component of the emergency regulation, pursuant to Water Code section 1058.5, for areas within Green Valley, Mill, Dutch Bill and Mark West Creek watersheds, tributaries to the Russian River. Due to recent rain events, leading to favorable hydrologic conditions, CDFW does not recommend that the enhanced conservation measures be re-adopted at this time. CDFW will, however, continue to monitor surface flow conditions throughout the watersheds during the year to assure that instream flow conditions remain sufficient to support listed salmonids, and may reevaluate this request if hydrologic conditions change.

If you have questions regarding these recommendations, please contact Ms. Corinne Gray, Senior Environmental Scientist (Specialist), at (707) 944-5526; or Mr. Craig Weightman, Environmental Program Manager, at (707) 944-5577 or Mr. Scott Wilson, Regional Manager, at (707) 944-5517; or by writing to CDFW at Bay Delta Region, 7329 Silverado Trail, Napa, CA 94558.

cc: Mr. Gary Stern  
Mr. David Hines  
NOAA Fisheries  
777 Sonoma Avenue, Room 325  
Santa Rosa, CA 95404

Tom Howard, Executive Director  
State Water Resources Control Board  
1001 I Street  
Sacramento, CA 95814

ec: CDFW staff (Region 3, WB, FB, OGC)

**Attachment 3: May 28, 2015 California Department of Fish and Wildlife  
Letter to the State Water Resources Control Board**



State of California – Natural Resources Agency  
DEPARTMENT OF FISH AND GAME  
Office of the Director  
1416 Ninth Street, 12<sup>th</sup> Floor  
Sacramento, CA 95814  
[www.dfg.ca.gov](http://www.dfg.ca.gov)

*EDMUND G. BROWN JR., Governor*  
*CHARLTON H. BONHAM, Director*



May 28, 2015

Tom Howard  
Executive Director  
California State Water Resources  
Control Board  
1001 I Street  
Sacramento, CA 95814

Dear Mr. Howard:

Subject: Recommendations for Conservation Actions to Support Listed Salmonids  
During the 2015 California Drought for Select Tributaries to the Russian River

The California Department of Fish and Wildlife (CDFW) has been working collaboratively with the National Marine Fisheries Service (NMFS), local landowners, and the State Water Resources Control Board (State Water Board) to address ongoing conditions resulting from the drought. Low flow conditions in tributaries of the Russian River have resulted in significant declines in salmonid production and survival during the 2014 season and drought conditions have persisted in 2015. These watersheds contain Central California Coast (CCC) coho salmon and CCC steelhead, which are listed under the Federal Endangered Species Act (ESA) as endangered and threatened, respectively. Coho salmon are also listed as Endangered under the California Endangered Species Act (CESA). CDFW has determined the following:

- These tributaries have historically supported spring and summer rearing habitat for naturally producing coho salmon and steelhead and support some of the last remaining habitat available during drought.
- These tributaries sustained perennial flow in the previous three drought years and available habitat is limited by lack of flow.
- These tributaries are subject to large numbers of summer diversions that are cumulatively affecting the amount of water available for instream habitat.
- The exact number, location, and extent of diversions are unknown. Better information can help parties manage diversions cumulatively as it relates to instream habitat.
- When parcels do not have access to municipal water sources, water is extracted from the watershed whether by surface or subsurface diversion.
- Surface and subsurface diversion of streamflow is not subject to any mandatory conservation measures.
- Many of the parcels adjacent to the creeks are residential and irrigation of outdoor landscaping is a large source of water use in many residential households.

*Conserving California's Wildlife Since 1870*

Tom Howard, Executive Director  
California State Water Resources  
Control Board  
May 28, 2015  
Page 2

### **Voluntary Drought Initiative**

On January 17, 2014, Governor Edmund G. Brown Jr. declared a drought state of emergency. On April 25, 2014, the Governor issued an Executive Order continuing the State of Emergency and strengthening the state's ability to manage water and habitat effectively in drought conditions. On December 22, 2014, Governor Brown issued an Executive Order that extended certain aspects identified in the January 2014 and April 2014 Executive Orders until May 31, 2016.

Importantly, the April 2014 Executive Order directed CDFW to work with other state and federal agencies and with landowners in priority watersheds to protect threatened and endangered species and species of special concern and maximize the beneficial uses of scarce water supplies, including employment of voluntary agreements to secure instream flows, relocation of members of those species, or through other measures. In 2014, CDFW worked in various river systems around the state to pursue voluntary agreements with landowners.

CDFW partnered with the NMFS to develop a California Voluntary Drought Initiative (Voluntary Drought Initiative) program, which identified Green Valley, Mill, Dutch Bill and Mark West Creeks as priority watersheds. These creeks are tributaries to the mainstem Russian River. CDFW encourages the development of Voluntary Drought Initiative Agreements (Agreements) between CDFW and other parties to provide instream flows for fish, associated monitoring, and potential fish rescue actions. In October 2014, April 2015, and May 2015, CDFW provided letters to all landowners within select areas of these four streams to encourage water conservation and the development of Agreements to enhance flows to support summer rearing habitat critical to the survival of coho salmon and steelhead. As of now, CDFW believes that conditions in these priority watersheds are quickly deteriorating and without significant water conservation efforts most if not all portions of these tributaries could experience fish mortality due to early drying. Coho require hydrologic connection between pool habitat to maintain adequate dissolved oxygen and temperature conditions for survival.

In addition to those cooperative efforts, we encouraged residents to take additional water conservation actions and provided information on potential voluntary actions that could be taken to protect threatened and endangered species and maximize the beneficial uses of scarce water supplies. In order to communicate the dire conditions in these watersheds and to encourage landowner cooperation, CDFW has conducted several outreach meetings to facilitate the Voluntary Drought Initiative process. Through our communications with landowners, we have received several complaints regarding other landowners who have not been responsive to CDFW efforts and are likely having a considerable effect on instream flow. CDFW will continue to work collaboratively with landowners to implement voluntary activities; however, additional



Tom Howard, Executive Director  
California State Water Resources  
Control Board  
May 28, 2015  
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action may be needed to ensure sufficient flow for summer rearing and adult passage in the fall and early winter during the 2015 drought.

In 2015, as of the date of this memorandum, CDFW has entered into Agreements with nineteen residential landowners to forgo irrigation of lawns, implement additional water conservation measures and provide creek access to CDFW to monitor fishery and stream conditions and to implement potential fish rescue actions. CDFW is also in discussions with several landowners including representatives from the wine industry, to develop Agreements to release stored water to enhance instream flow for coho salmon. Several landowners including Jackson Family Winery have also donated funds to local groups to help residential landowners purchase tanks under the Emergency Tank Program to help minimize the effect of water diversions on instream habitat.

In broad terms, CDFW's goal in the Russian River is an ambitious one. The Russian River hydrologic unit covers an area approximately 1,485 square miles and includes about 240 named and numerous unnamed tributaries. It is the subject of a fisheries restoration plan articulated in CDFW's Recovery Strategy for Coho.

Coast-wide coho salmon recovery in California depends on recovery success in the Russian watershed. We know that a coalition of collaborative partners exists in the watershed and that this coalition is willing to work together to make it through this drought. We are charged to bring back coho salmon to healthy and sustainable population levels. In the immediate, we hope to bridge hydrological conditions in this fourth year of drought (and any future years) such that it might be possible to maintain minimal hydraulic connectivity in these four tributary streams to support habitat conditions that provide a reasonable probability of survival of steelhead and coho salmon juveniles during the summer low flow period. Both in the broad, long-term goal – and the immediate – CDFW believes working with all parties provides the best chance for success.

### **Emergency Regulations**

CDFW has coordinated with State Water Board staff regarding potential emergency regulatory measures under consideration for regulation by State Water Board. Based on that coordination and the significant public outreach in the last few weeks, CDFW is not now recommending the State Water Board move forward with requiring regulations for curtailment of diversions, although that need may arise as the summer progresses. Instead, for now, CDFW and NMFS recommend that the State Water Board develop emergency regulations, pursuant to Water Code section 1058.5, for areas within Green Valley, Mill, Dutch Bill and Mark West Creek watersheds (<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=98347&inline>), tributaries to the Russian River to: (1) issue an informational order to determine the extent of current surface and subsurface diversion operations in each watershed; and, (2) immediately

Tom Howard, Executive Director  
California State Water Resources  
Control Board  
May 28, 2015  
Page 4

implement conservation measures to limit the amount of water extracted from these watersheds during the 2015 drought that track conservation measures the State Water Board has required elsewhere. These regulations include measures to:

- Forgo irrigation of all lawn and ornamental annual areas;
- Forgo all irrigation between 8 am and 8 pm and within 48 hours of rain event;
- Forgo washing cars, sidewalks and driveways; and,  
Forgo expansion of all other water uses beyond 2014 levels.

CDFW acknowledges State Water Board staff and many parties around the state are busy faithfully and collaboratively implementing the Sustainable Groundwater Management Act. The recommendation for an information order is in no way intended to interfere with local leadership on implementation. CDFW will continue to work with landowners to pursue Agreements under the Voluntary Drought Initiative. We thank the nineteen enrollees so far. We await any other parties who might like to design their Agreement for participation in the Voluntary Drought Initiative. CDFW recommends that landowners operating in conformance with the terms of an executed agreement that includes conservation commitments be exempt from new conservation regulations that may be implemented by State Water Board for these tributaries.

If you have questions regarding these recommendations, please contact Ms. Corinne Gray, Senior Environmental Scientist (Specialist), at (707) 944-5526; or Mr. Craig Weightman, Environmental Program Manager, at (707) 944-5577 or Mr. Scott Wilson, Regional Manager, at (707) 944-5517; or by writing to CDFW at Bay Delta Region, 7329 Silverado Trail, Napa, CA 94558.

Sincerely,



Charlton H. Bonham  
Director

cc: Mr. Gary Stern  
Mr. David Hines  
NOAA Fisheries  
777 Sonoma Avenue, Room 325  
Santa Rosa, CA 95404



Tom Howard, Executive Director  
California State Water Resources  
Control Board  
May 28, 2015  
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ec: Barbara Evoy, Deputy Director  
State Water Resources Control Board  
Division of Water Rights  
[Barbara.Evoy@waterboards.ca.gov](mailto:Barbara.Evoy@waterboards.ca.gov)

California Department of Fish and Wildlife

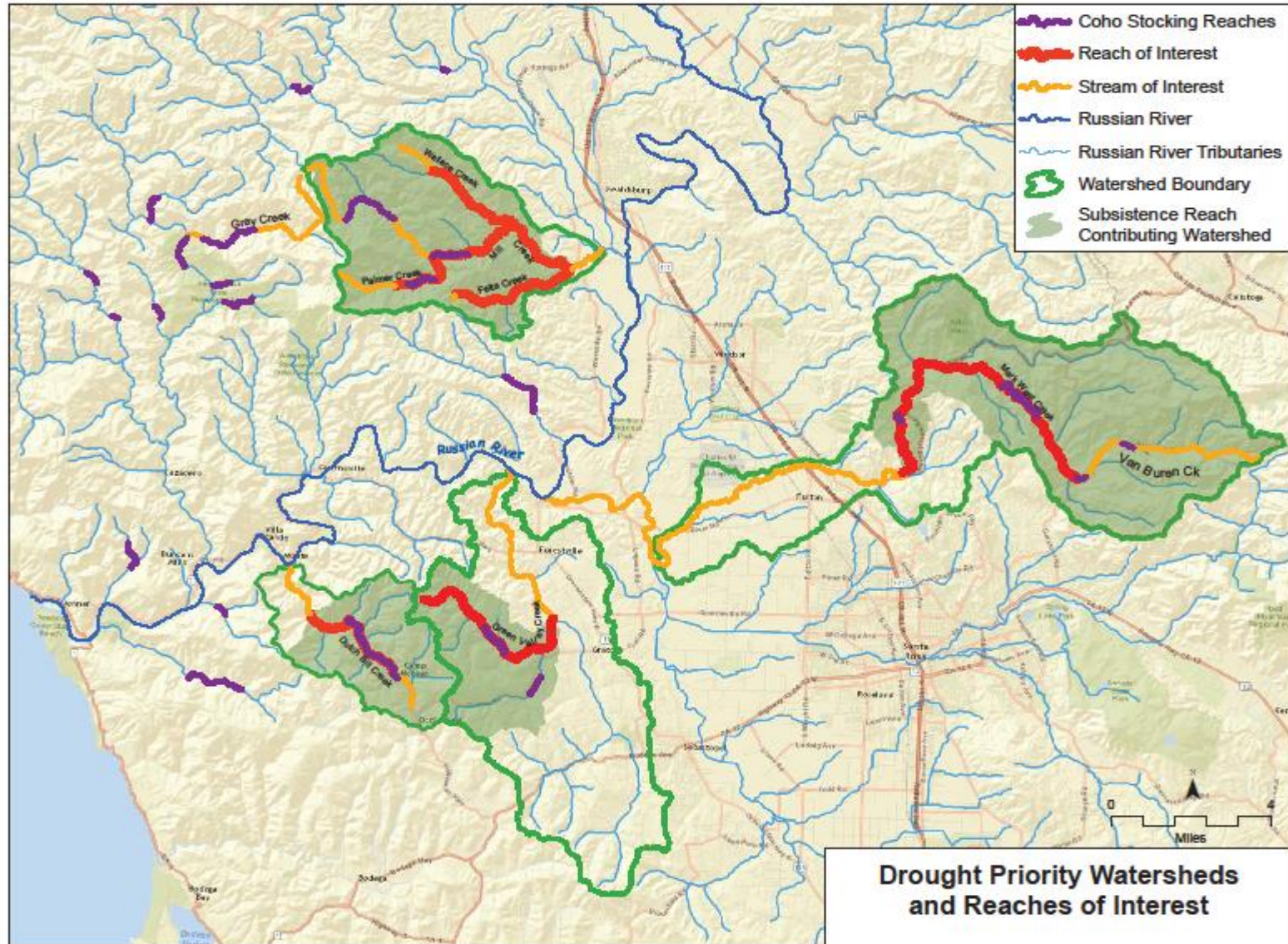
Sandra Morey, Deputy Director  
Ecosystem Conservation Division  
[Sandra.morey@wildlife.ca.gov](mailto:Sandra.morey@wildlife.ca.gov)

Scott Wilson, Manager  
Bay Delta Region (Region 3)  
[Scott.wilson@wildlife.ca.gov](mailto:Scott.wilson@wildlife.ca.gov)

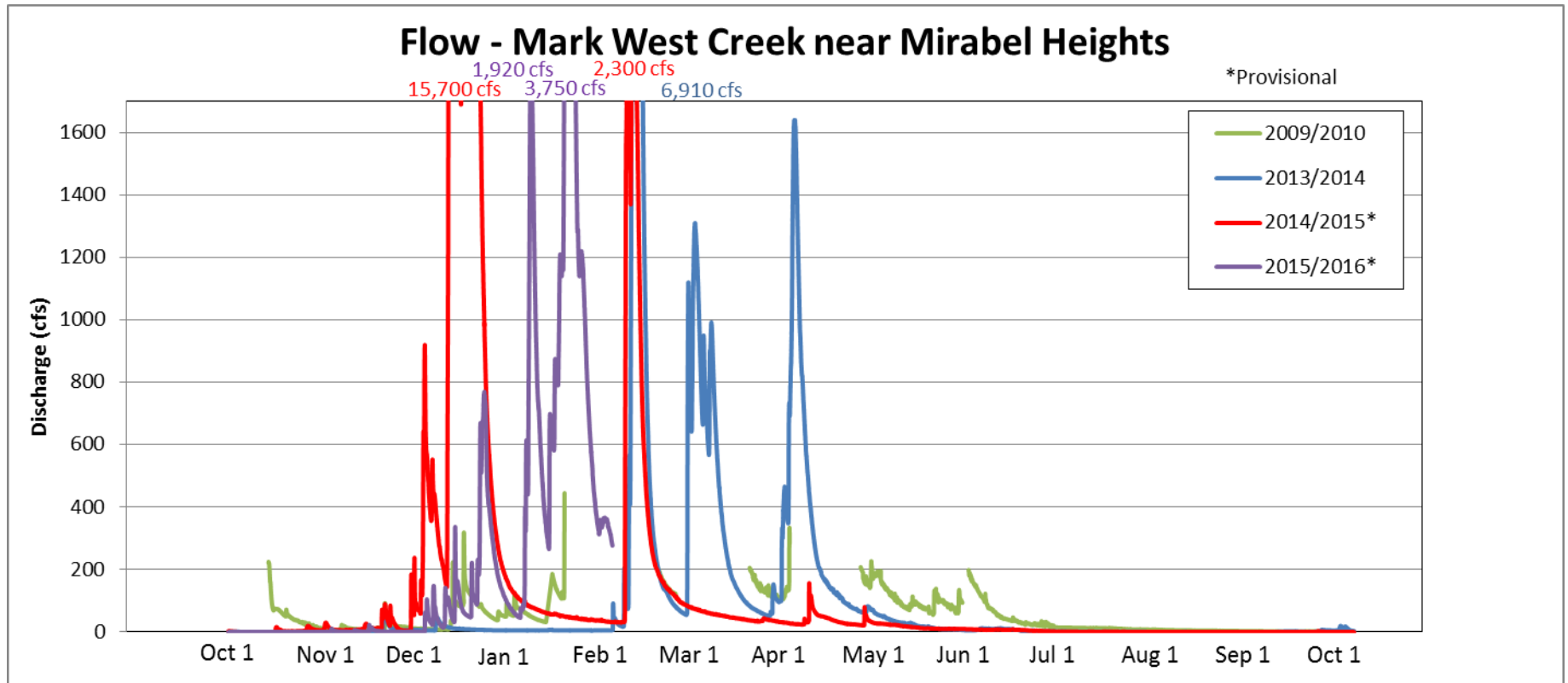
Craig Weightman, Environmental Program Manager  
Bay Delta Region (Region 3)  
[Craig.weightman@wildlife.ca.gov](mailto:Craig.weightman@wildlife.ca.gov)

Corinne Gray, Senior Environmental Scientist  
Bay Delta Region (Region 3)  
[Corinne.gray@wildlife.ca.gov](mailto:Corinne.gray@wildlife.ca.gov)

**Attachment 4: California Department of Fish and Wildlife Drought Priority Watersheds and Reaches of Interest**



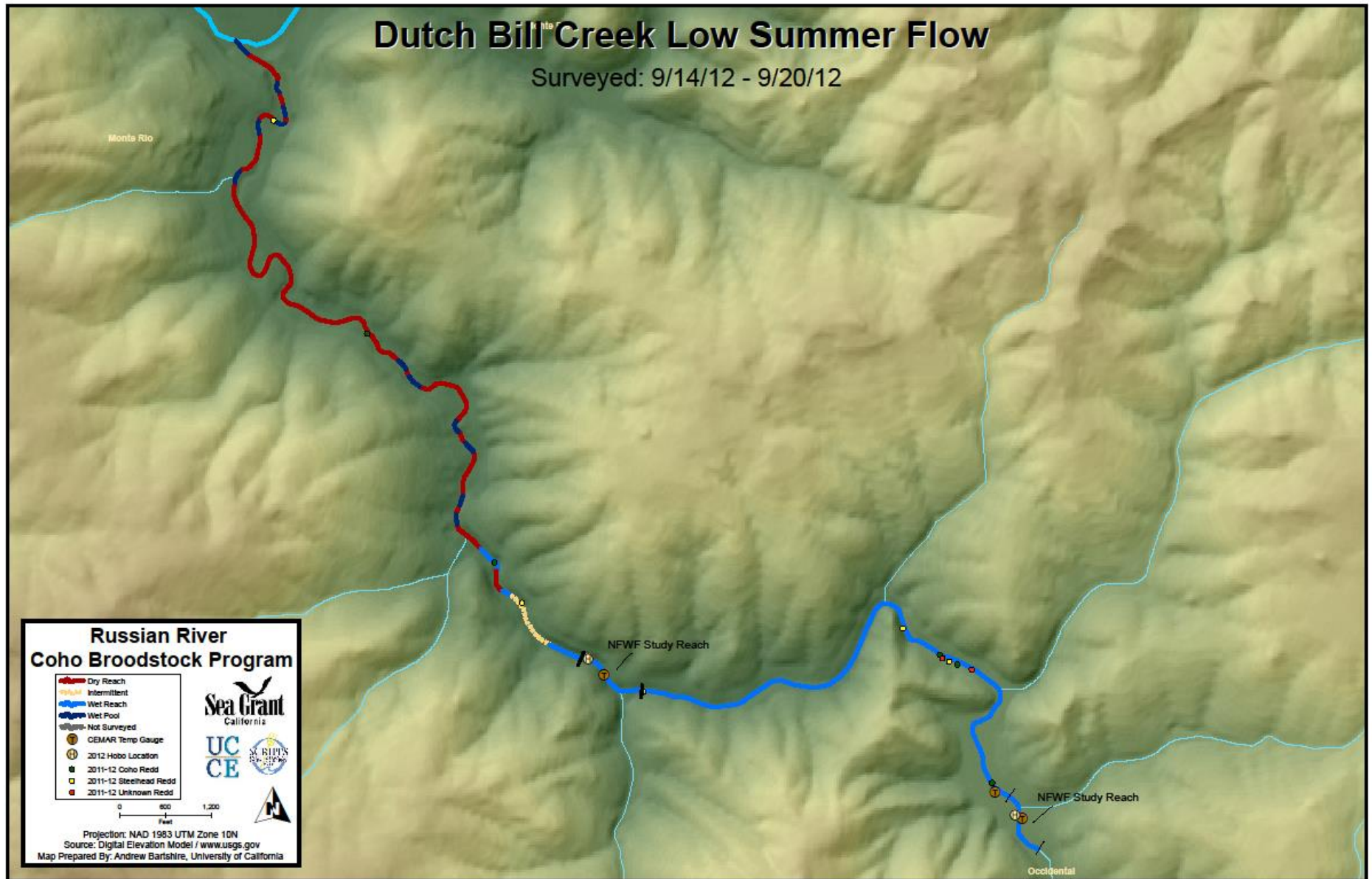
# Attachment 5: Mark West Creek near Mirabel Heights 2009-2016 Instream Flows by Water Year



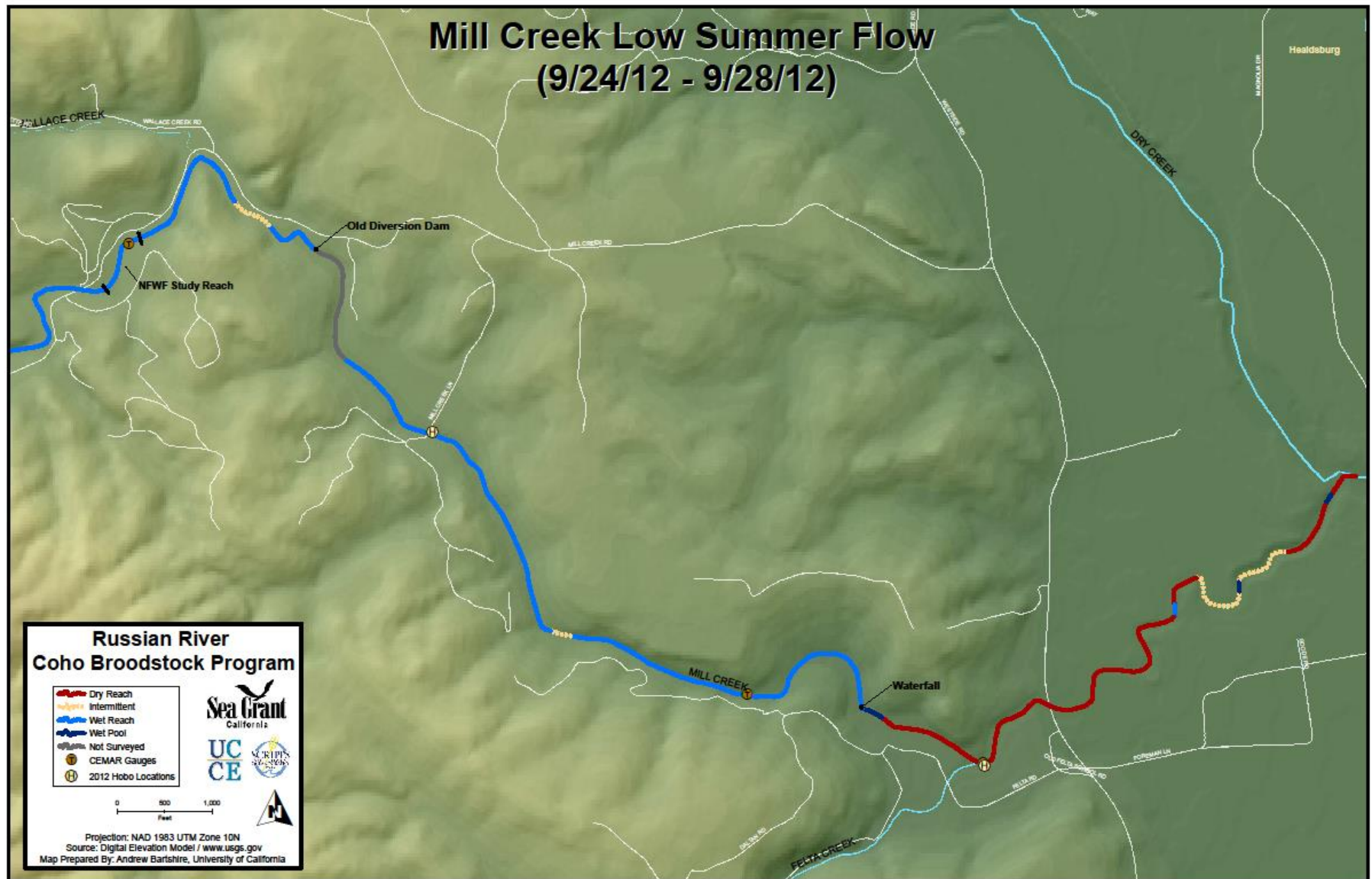
Mark West Creek flows in cubic feet per second (cfs), displayed by water year, comparing 2009/2010 (green), 2013/2014 (blue), and 2014/2015 (red) to the current water year 2015/2016 (purple). Flow was measured by the United States Geological Survey (USGS) gauging station near Mirabel Heights (station number 11466800). Data for 2015/2016, is provisional. Flood peaks that exceed the y-axis (Discharge- cfs) range are labeled with their peak cfs values. Some data gaps exist for the 2009/2010 water year.



Attachment 6: 2012 Dutch Bill Creek Low Summer Flow Map

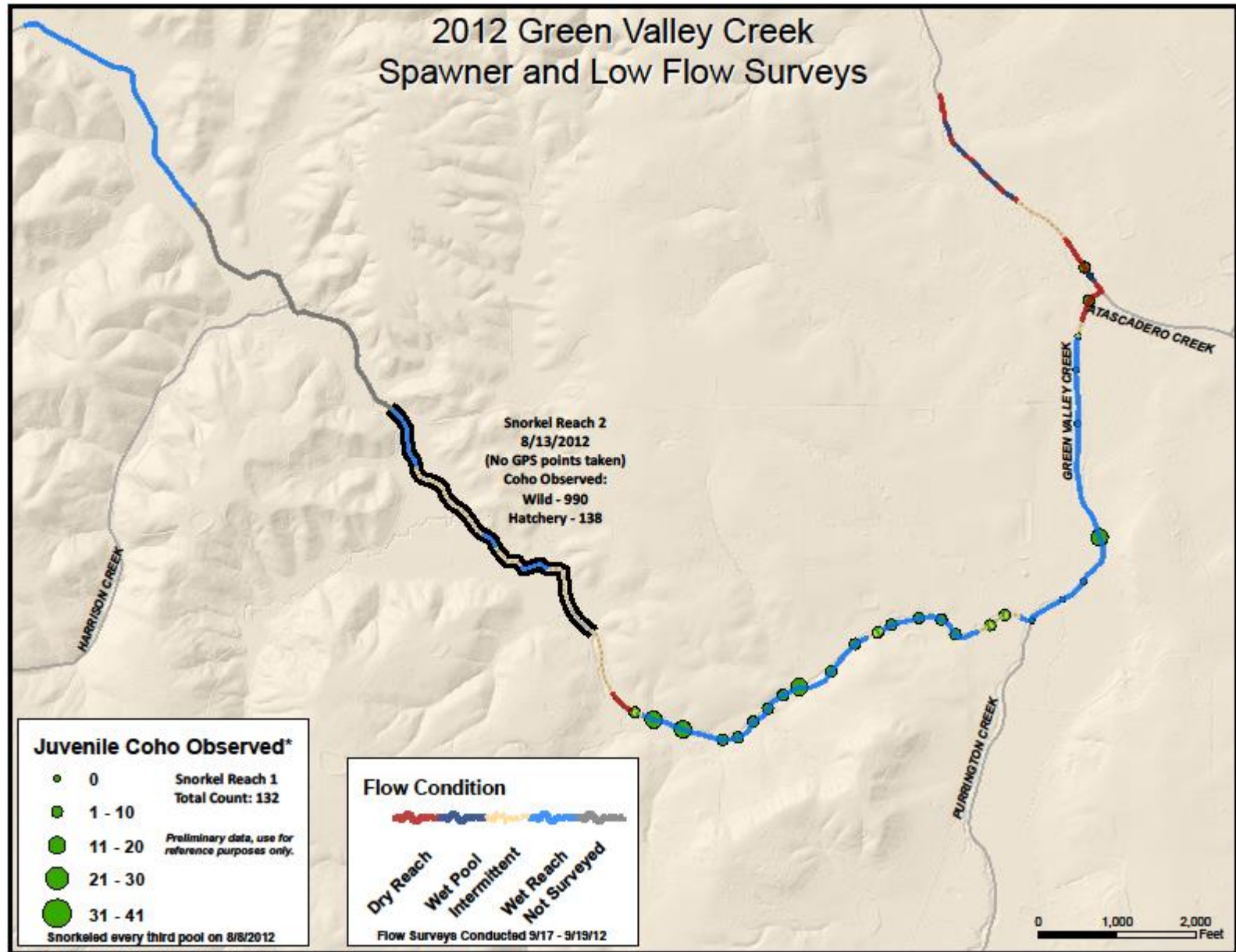


# Attachment 7: 2012 Mill Creek Low Summer Flow Map

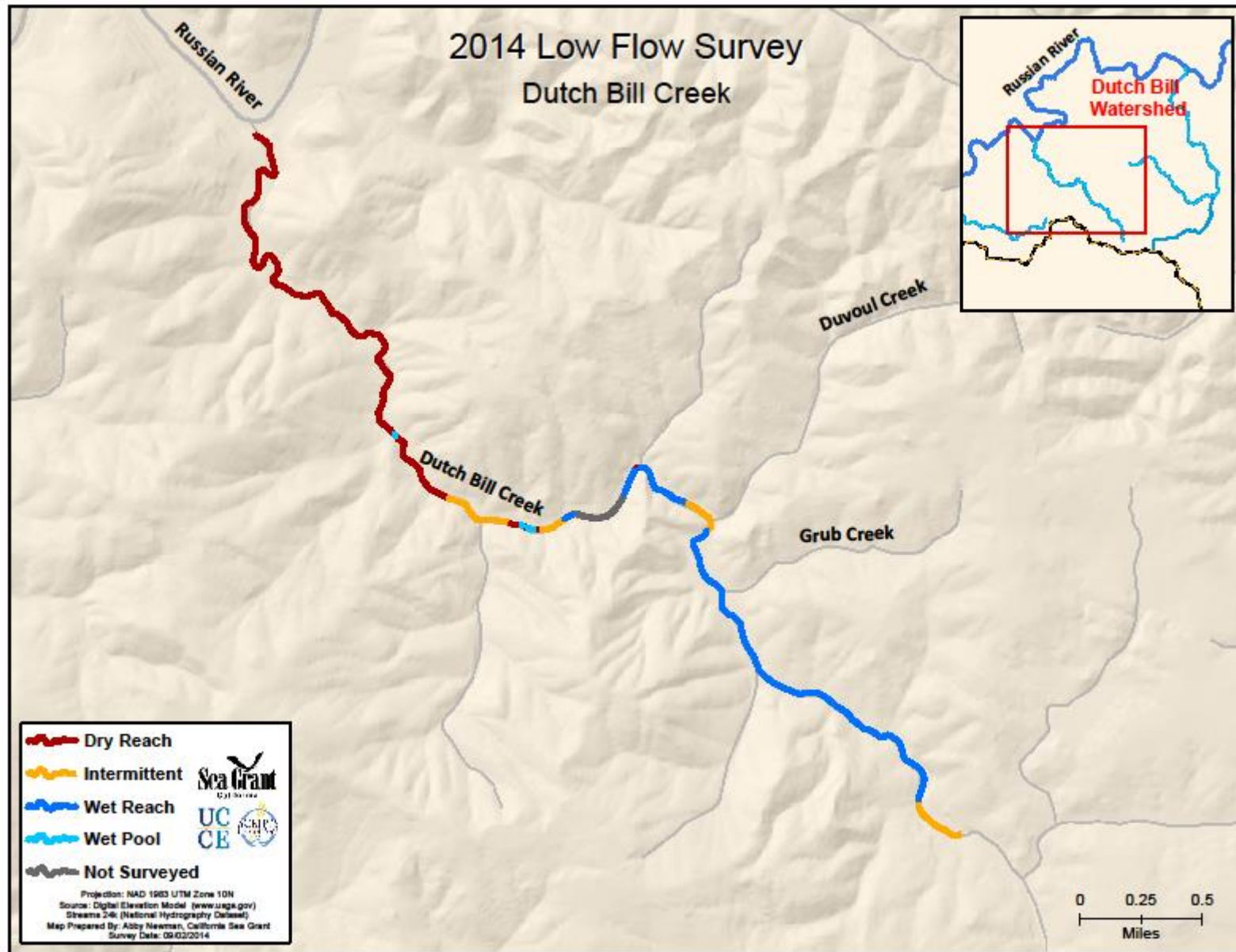




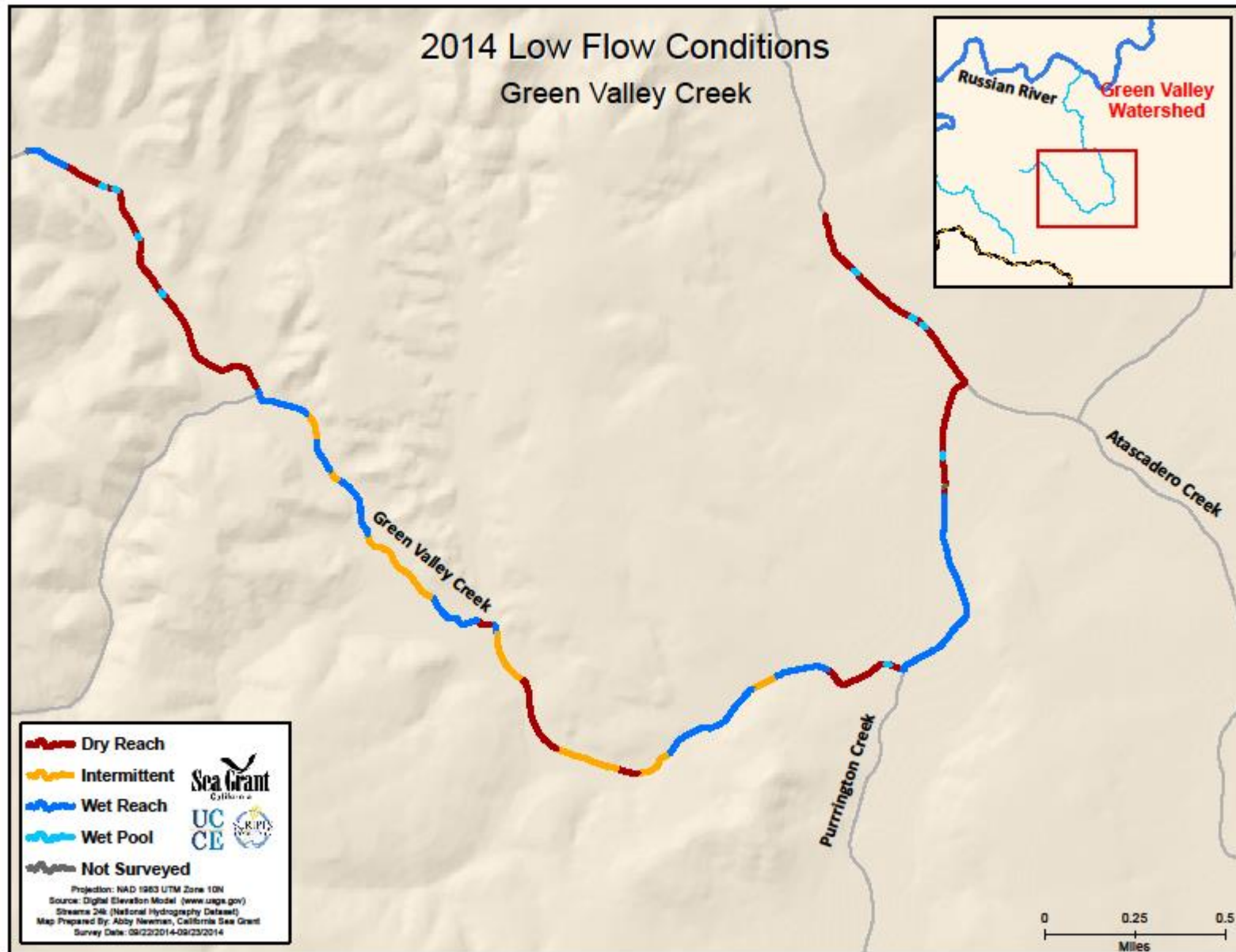
Attachment 8: 2012 Green Valley Creek Spawner and Low Flow Surveys Map



Attachment 9: 2014 Low Flow Survey Dutch Bill Creek Map

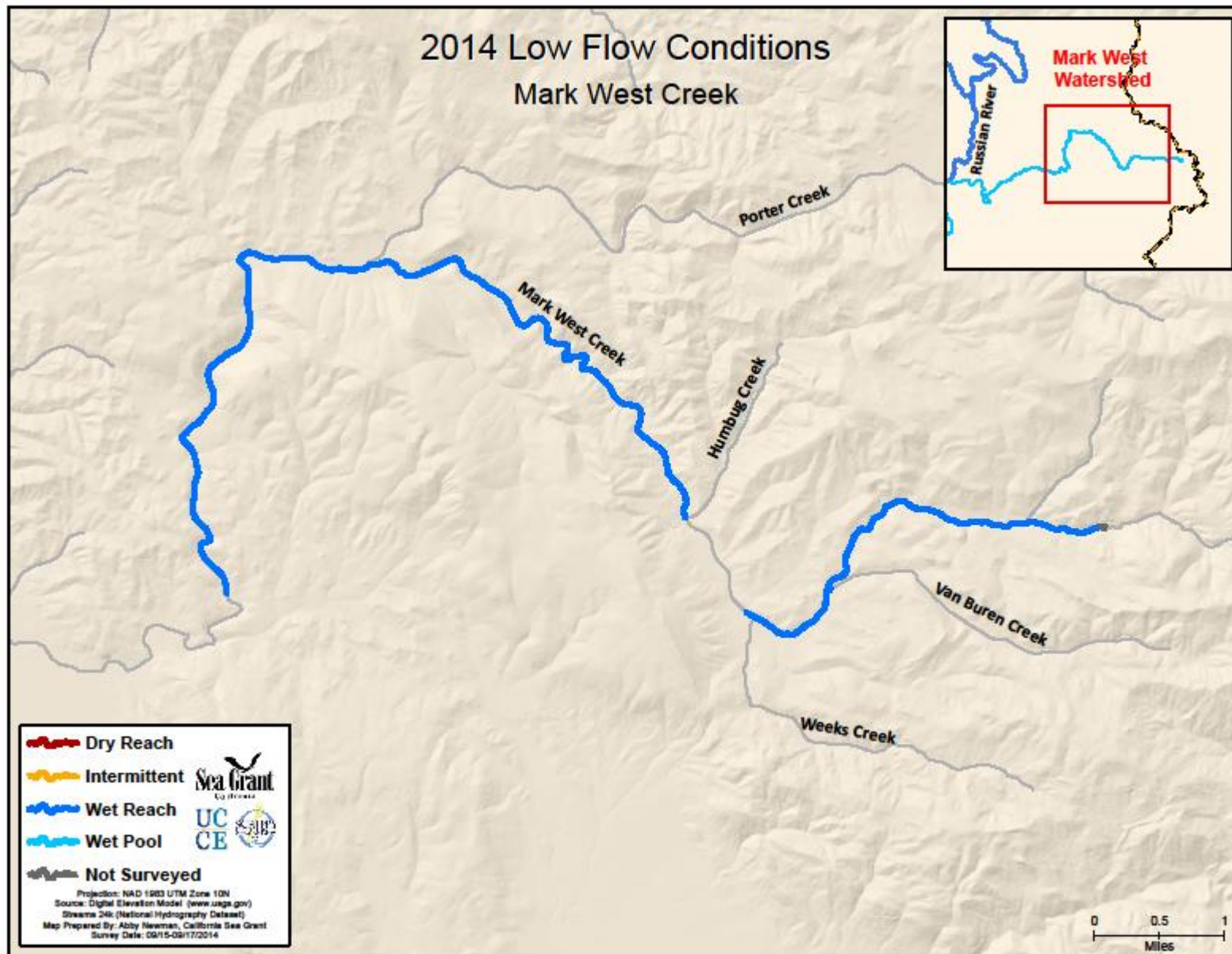


Attachment 10: 2014 Low Flow Conditions Green Valley Creek Map

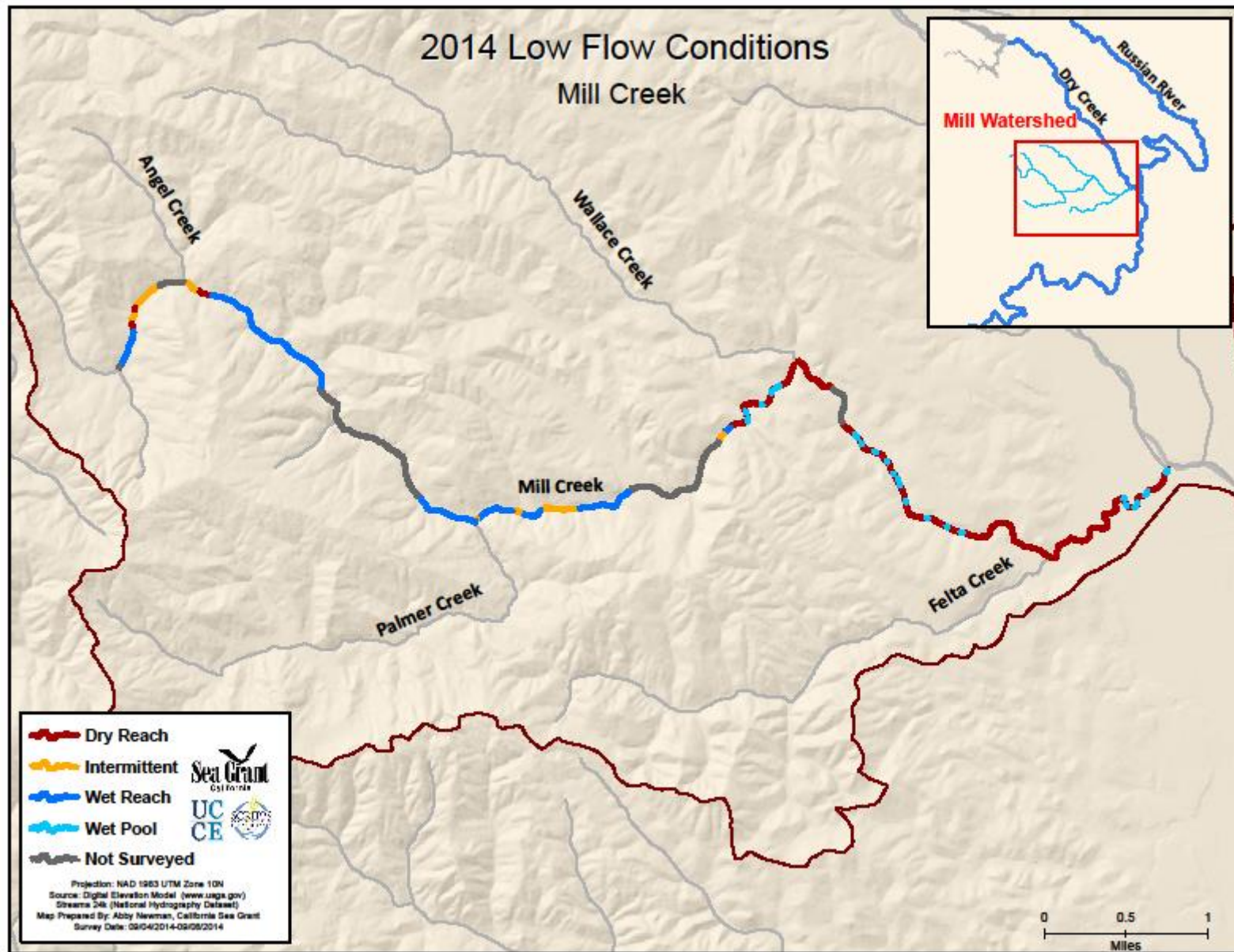




Attachment 11: 2014 Low Flow Conditions Mark West Creek Map

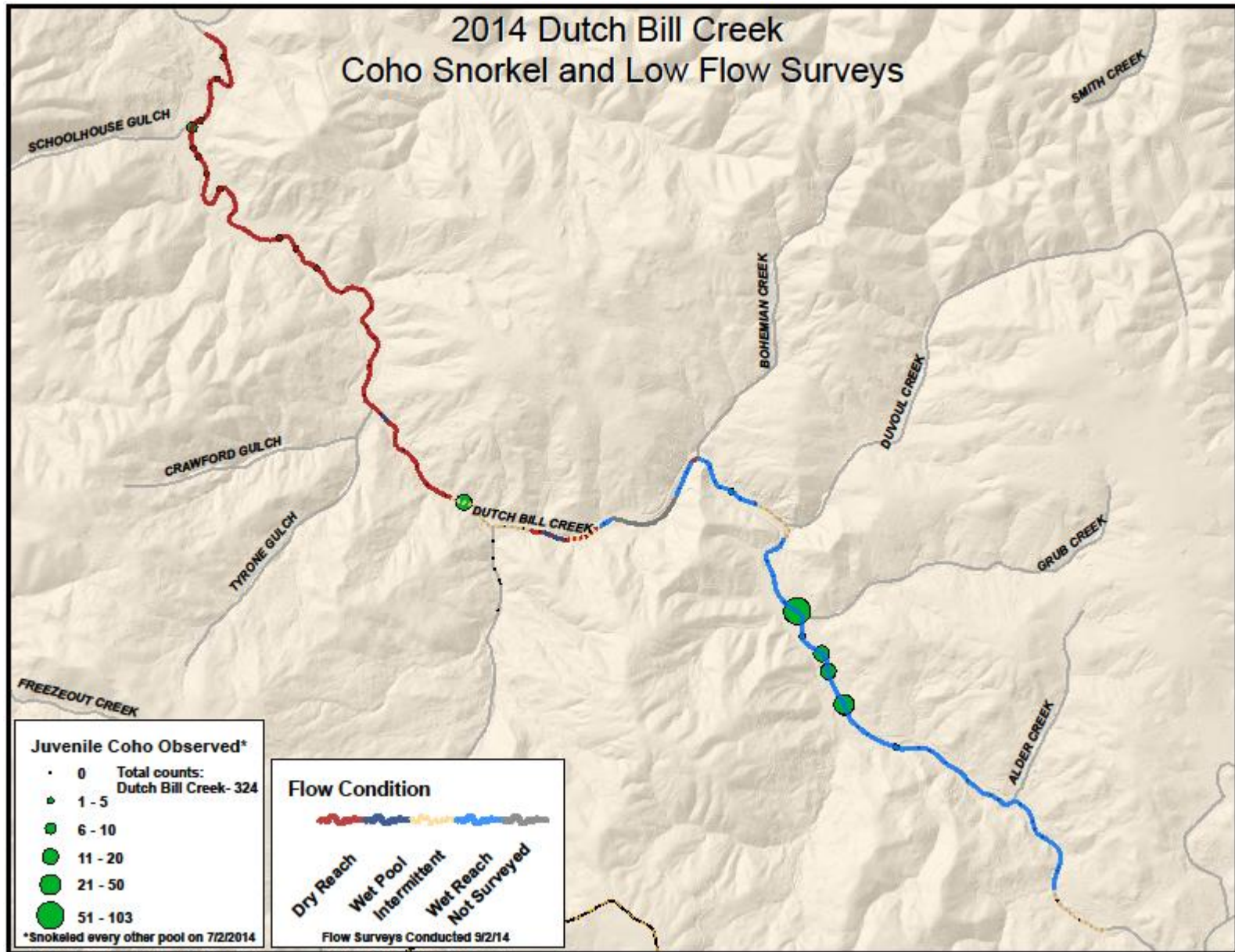


Attachment 12: 2014 Low Flow Conditions Mill Creek Map

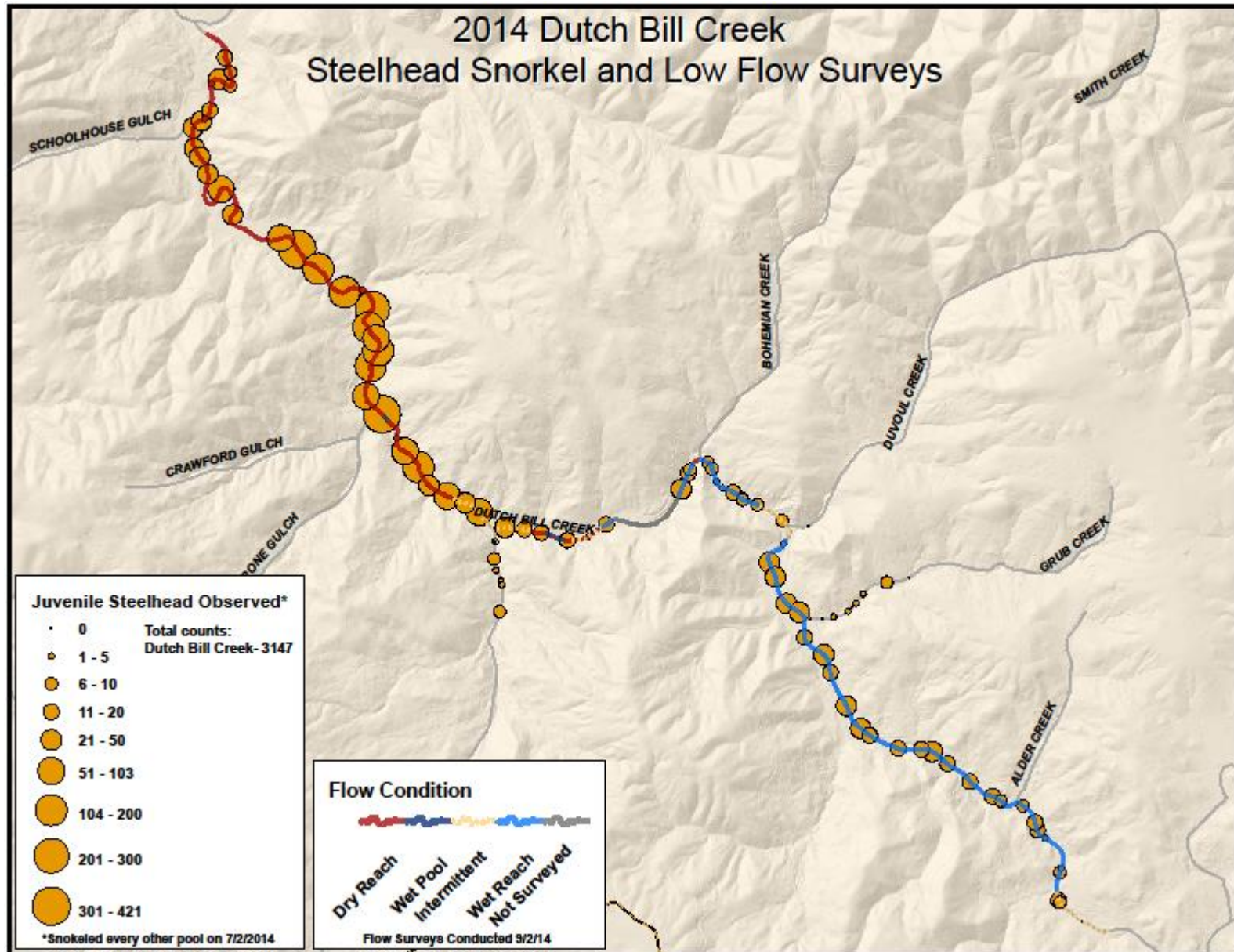




Attachment 13: 2014 Dutch Bill Creek Coho Snorkel and Low Flow Surveys Map

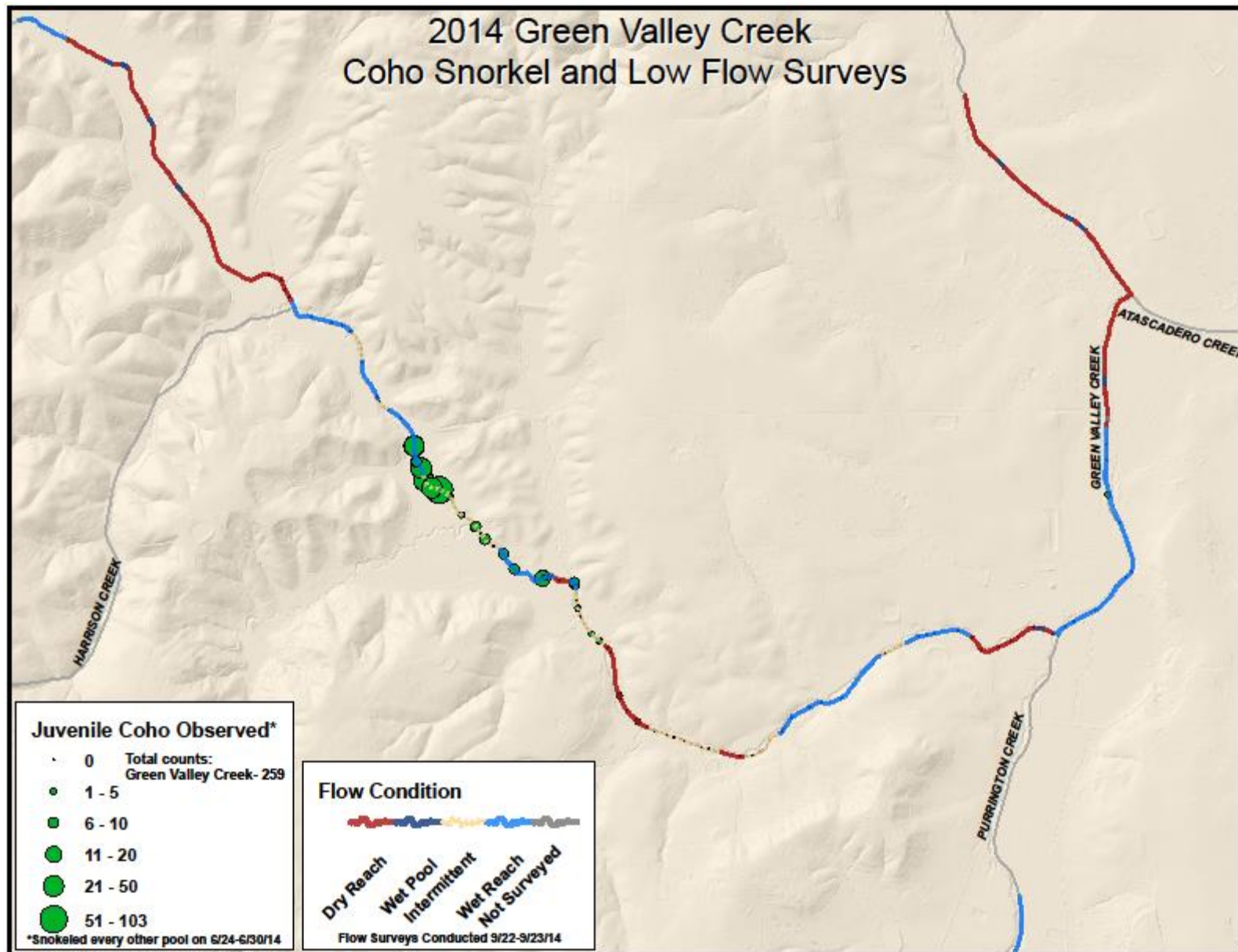


Attachment 14: 2014 Dutch Bill Creek Steelhead Snorkel and Low Flow Surveys Map

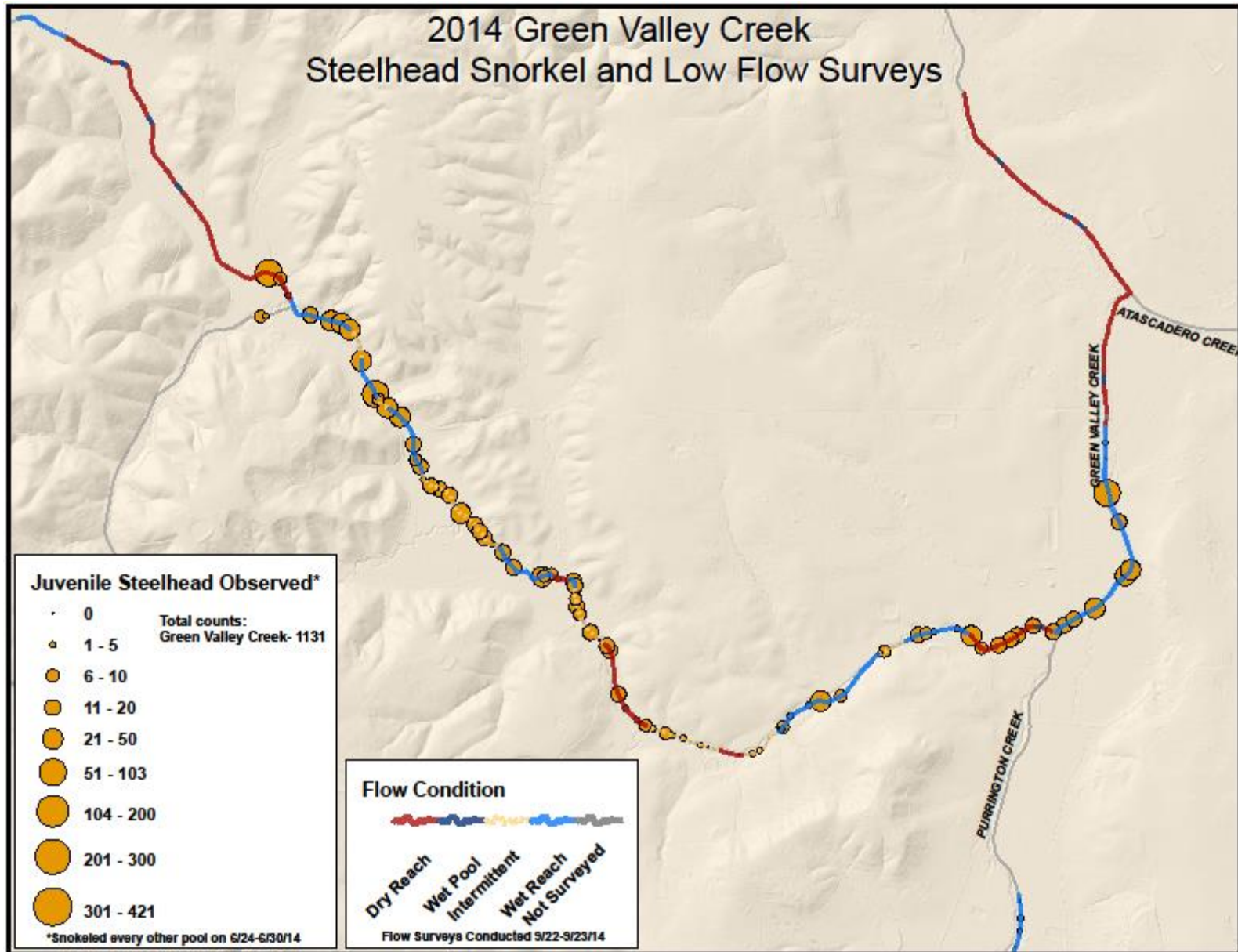




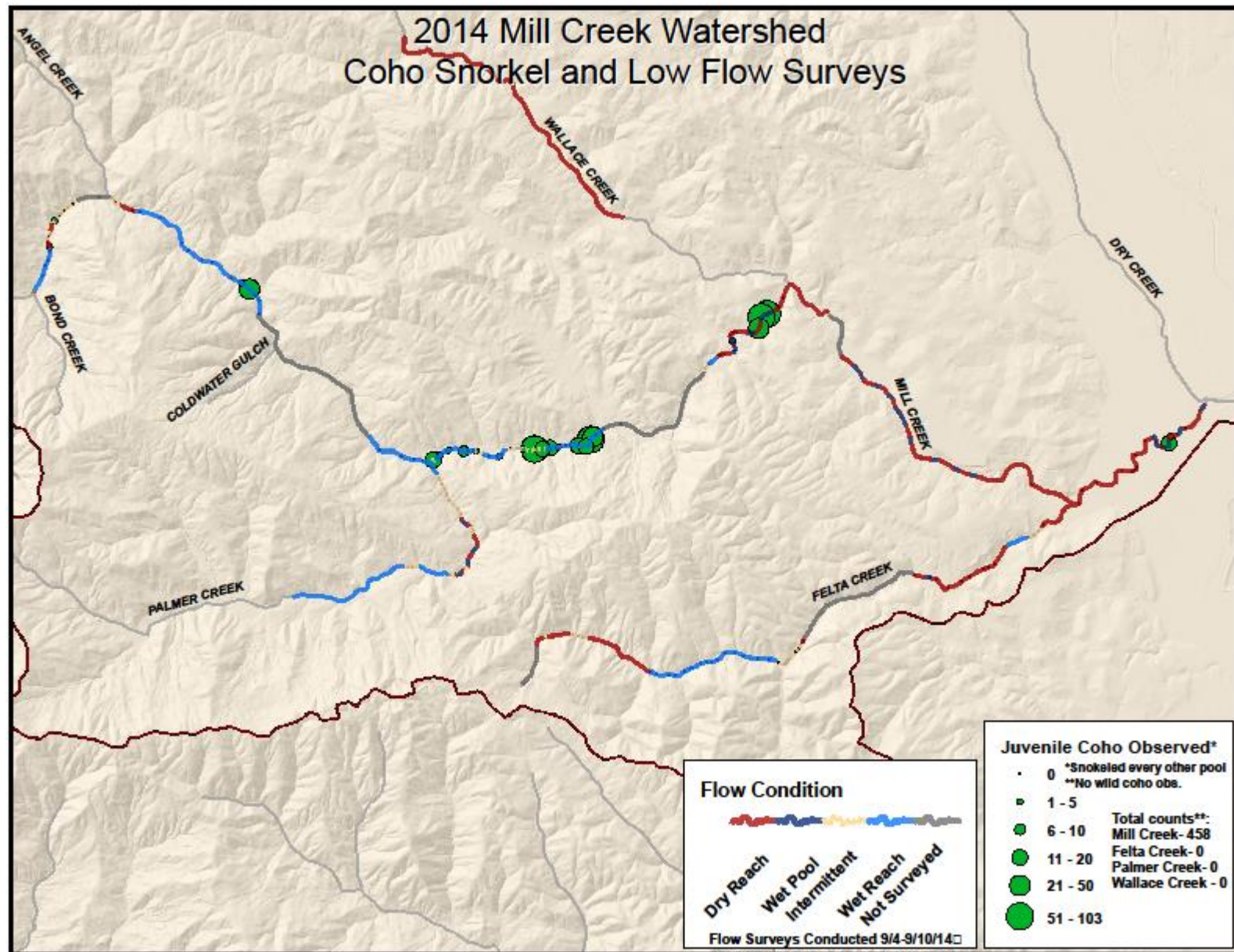
Attachment 15: 2014 Green Valley Creek Coho Snorkel and Low Flow Surveys Map



Attachment 16: 2014 Green Valley Creek Steelhead Snorkel and Low Flow Surveys Map

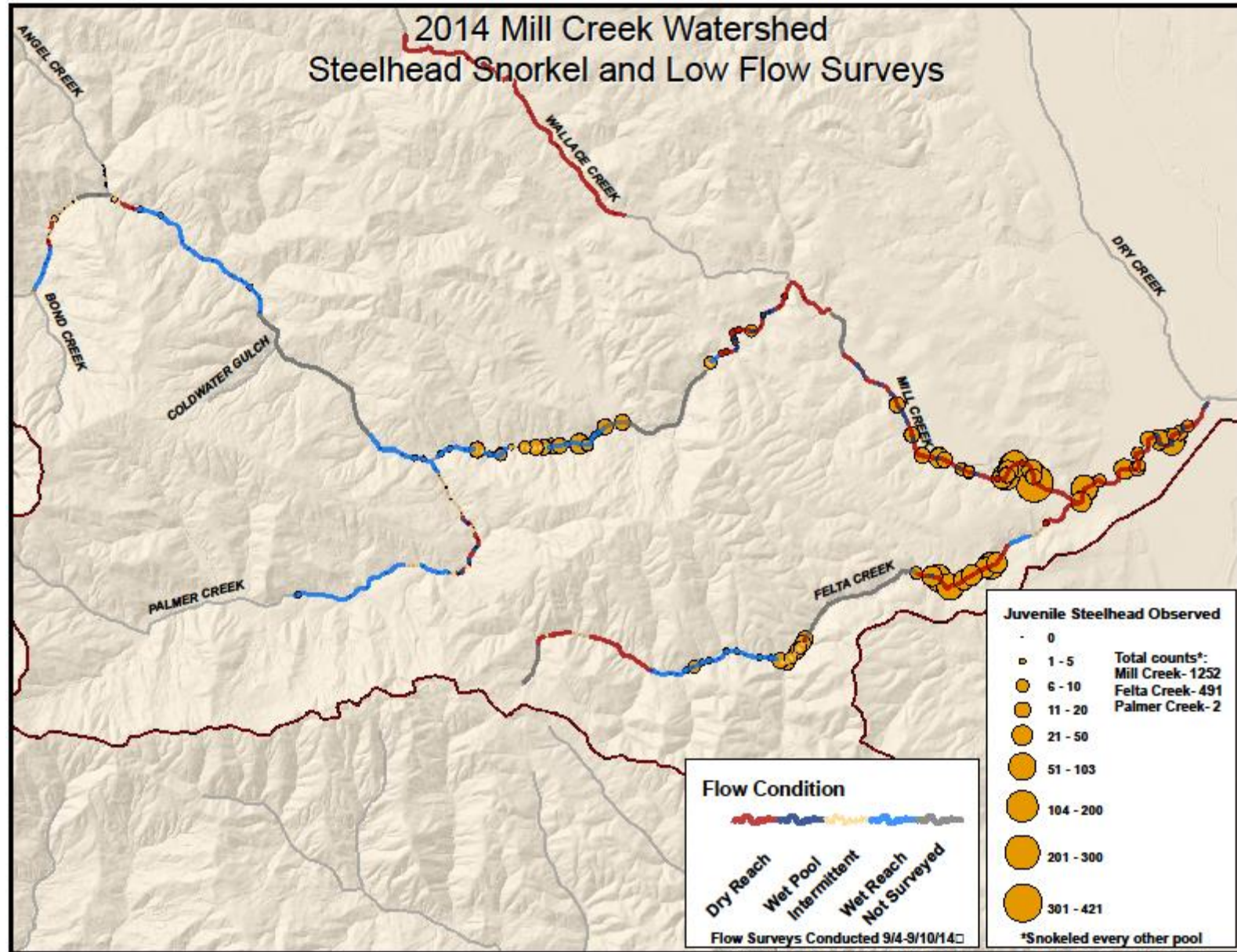


Attachment 17: 2014 Mill Creek Watershed Coho Snorkel and Low Flow Surveys Map



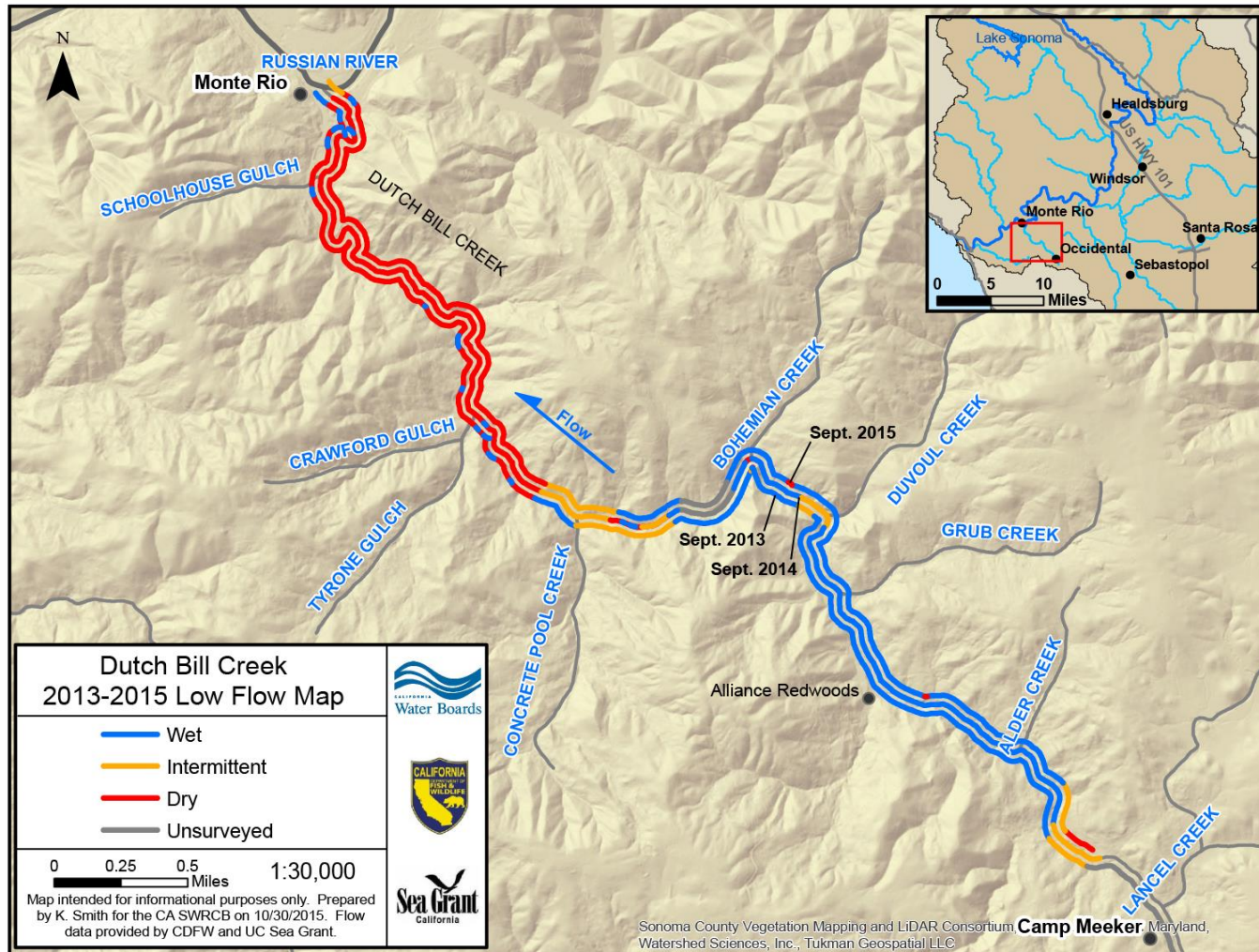


Attachment 18: 2014 Mill Creek Watershed Steelhead Snorkel and Low Flow Surveys Map

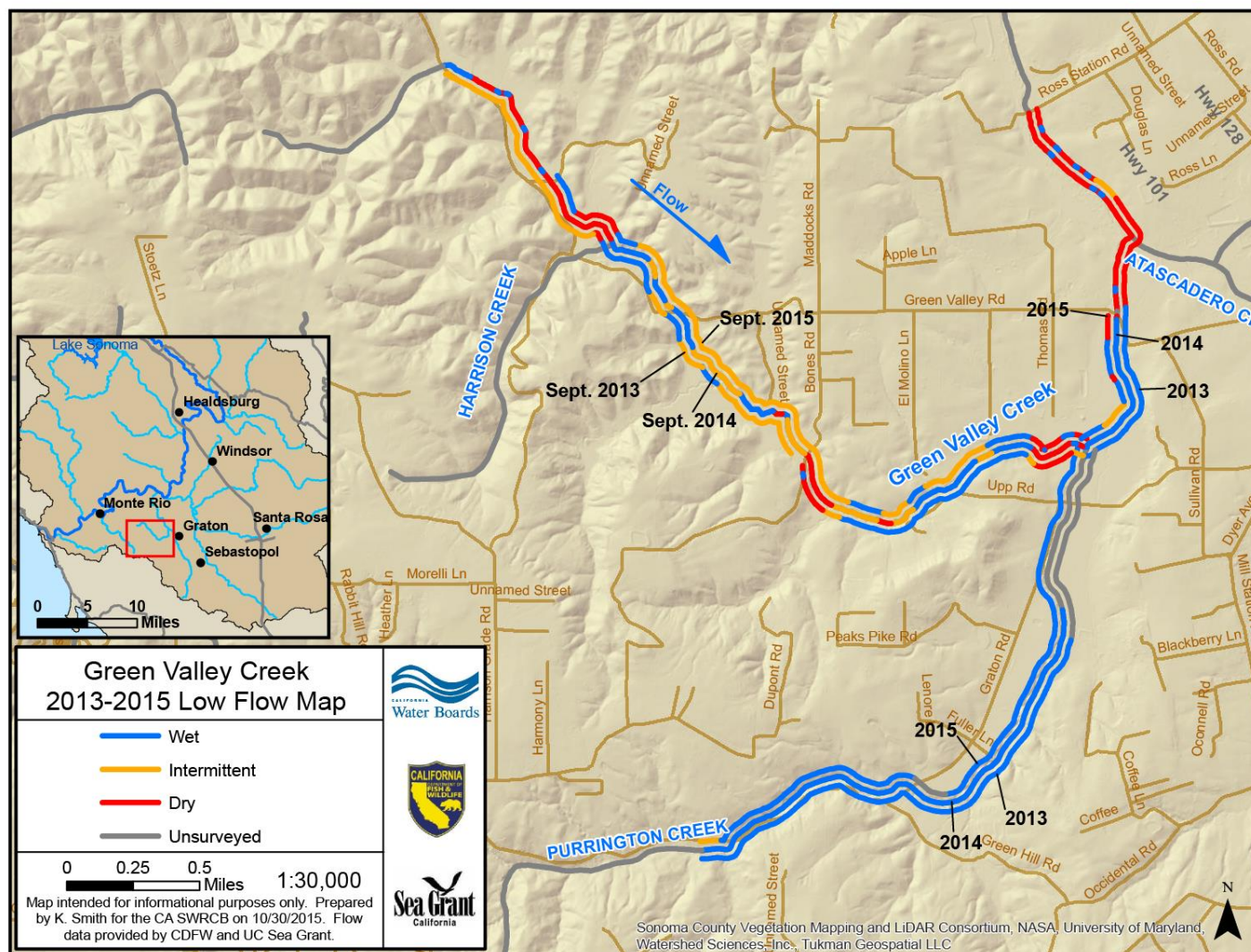




## Attachment 19: Dutch Bill Creek 2013-2015 Low Flow Map

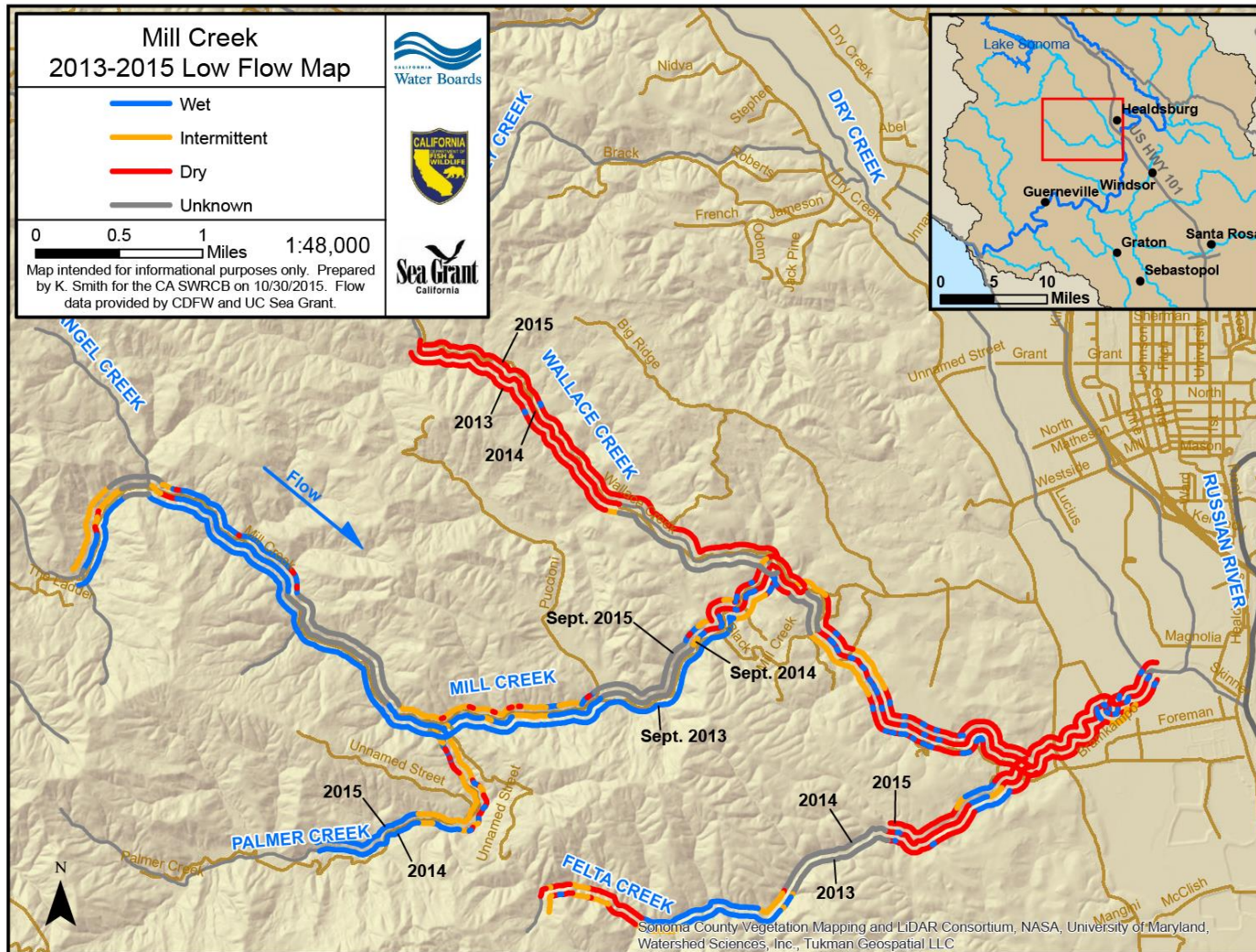


## Attachment 20: Green Valley Creek 2013-2015 Low Flow Map





## Attachment 21: Mill Creek 2013-2015 Low Flow Map



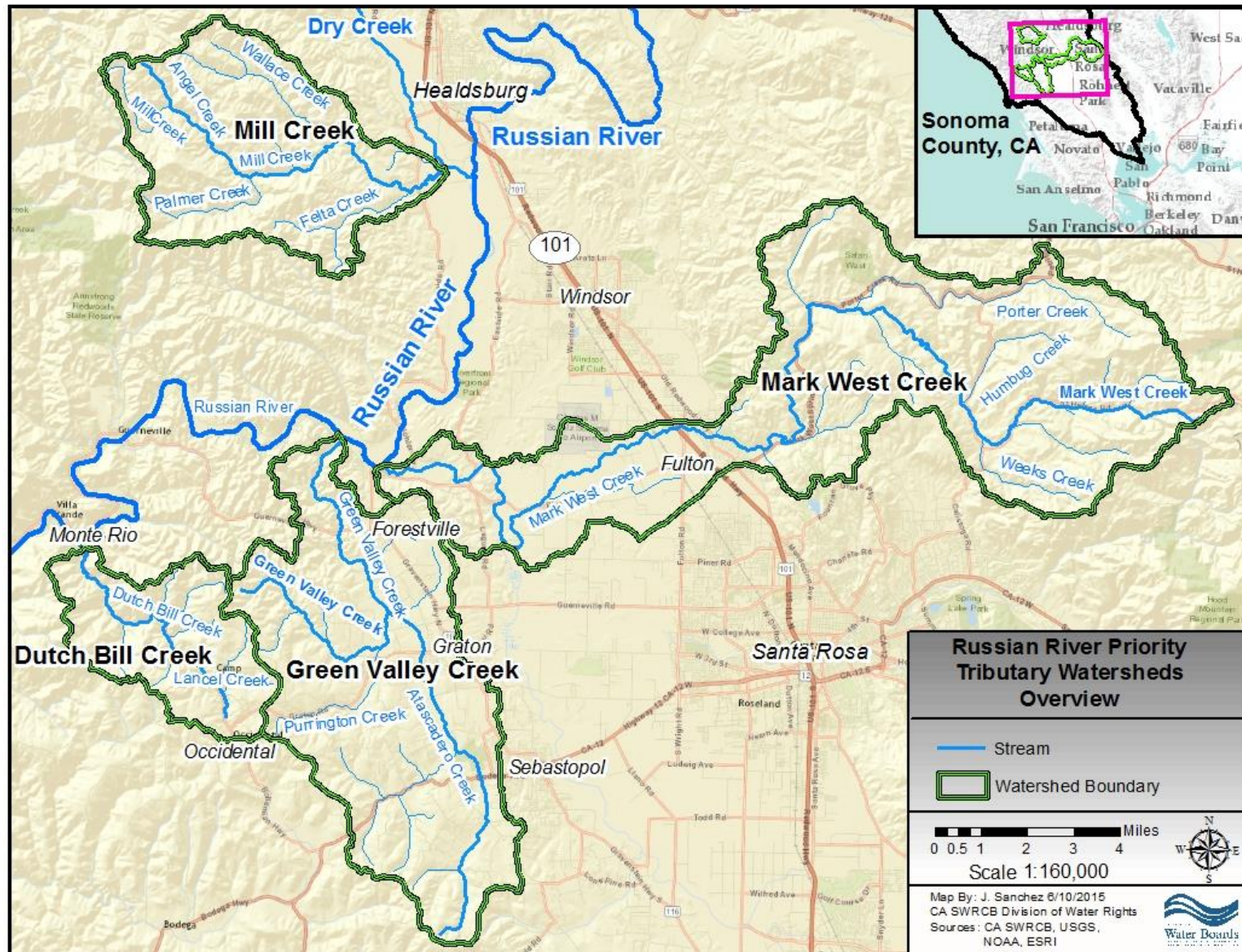


# Attachment 22: Mark West Creek 2013-2015 Low Flow Map



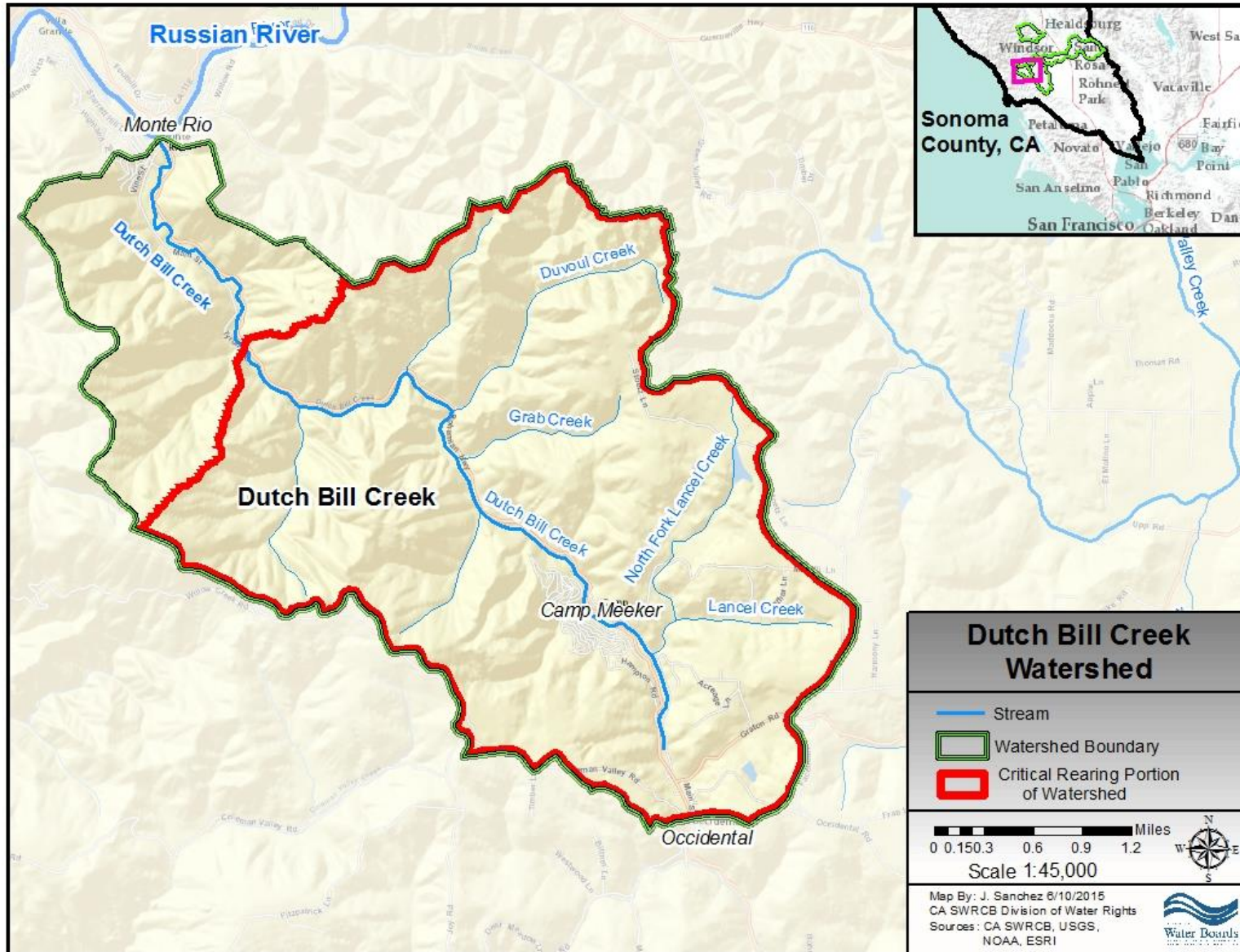


**Attachment 23: State Water Board Russian River Priority Tributary Watersheds Overview Map**

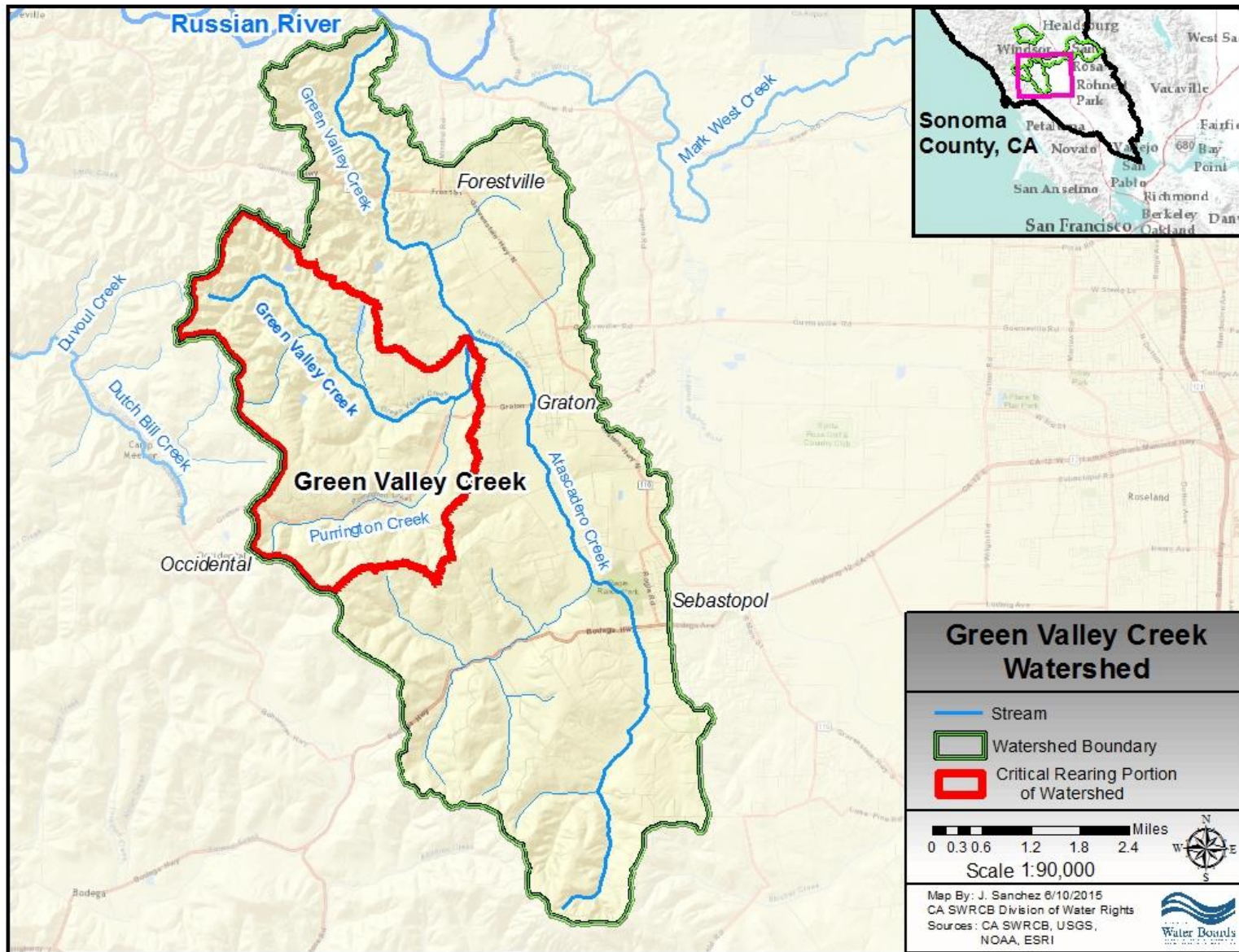




Attachment 24: State Water Board Dutch Bill Creek Watershed Map

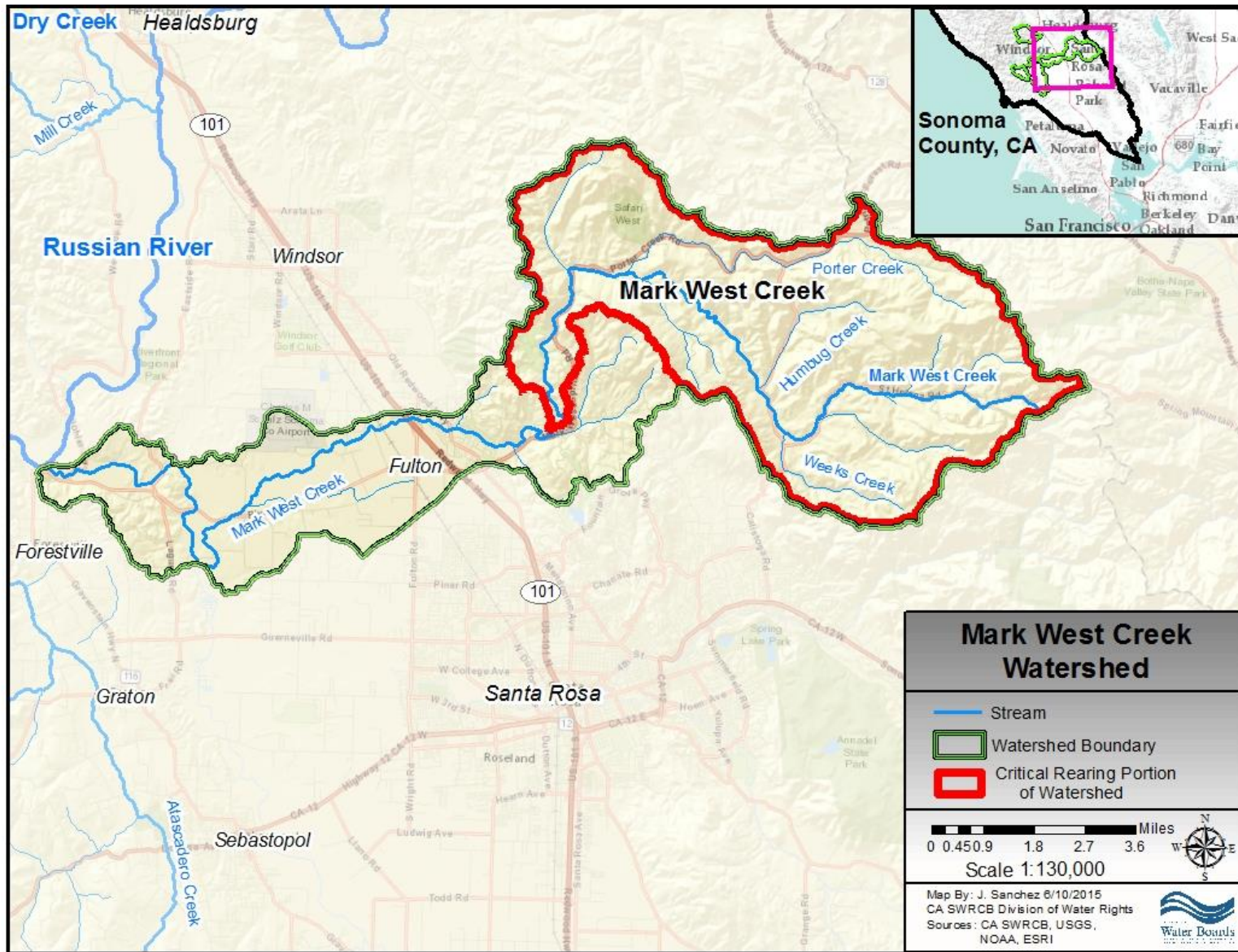


Attachment 25: State Water Board Green Valley Creek Watershed Map



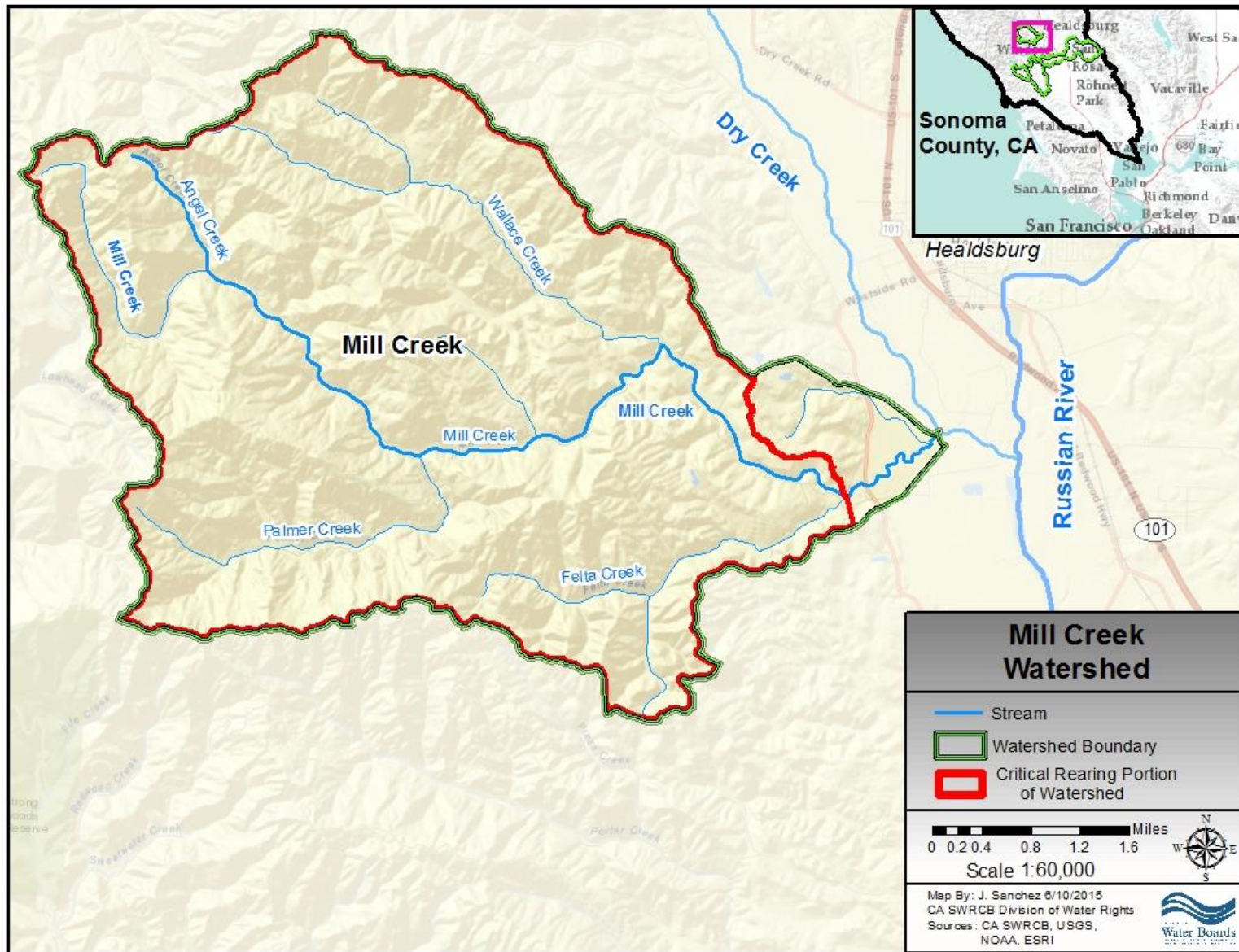


Attachment 26: State Water Board Mark West Creek Watershed Map



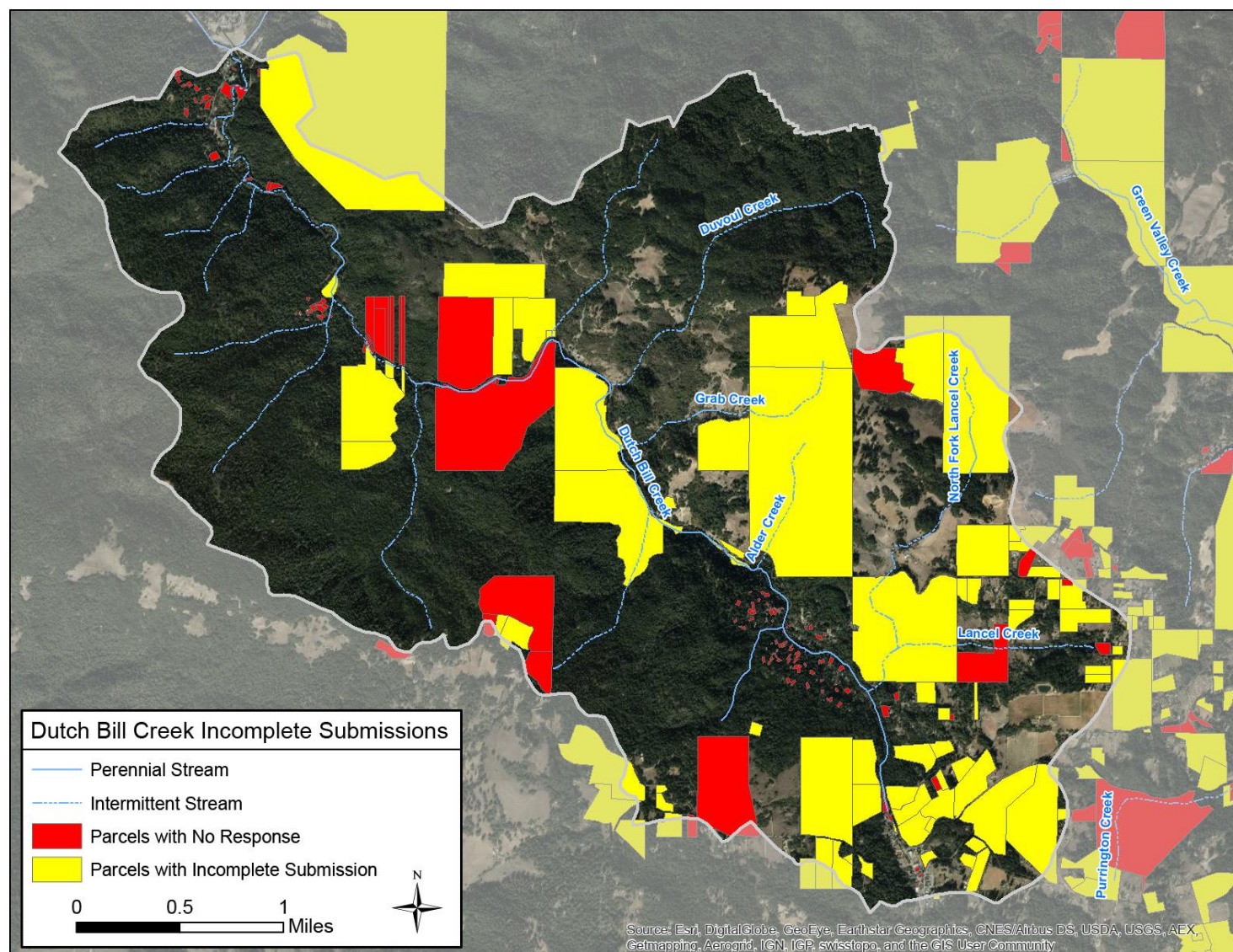


Attachment 27: State Water Board Mill Creek Watershed Map

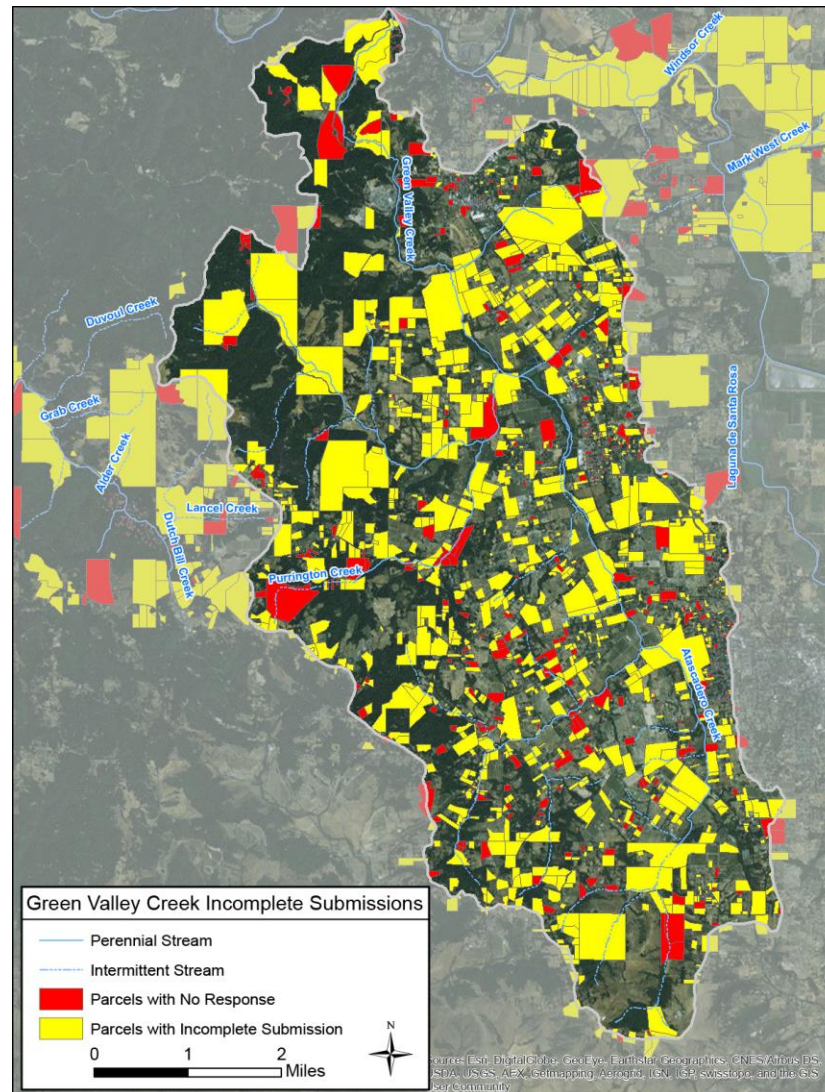




## Attachment 28: Dutch Bill Creek Watershed – Parcels with no Response or Incomplete Response

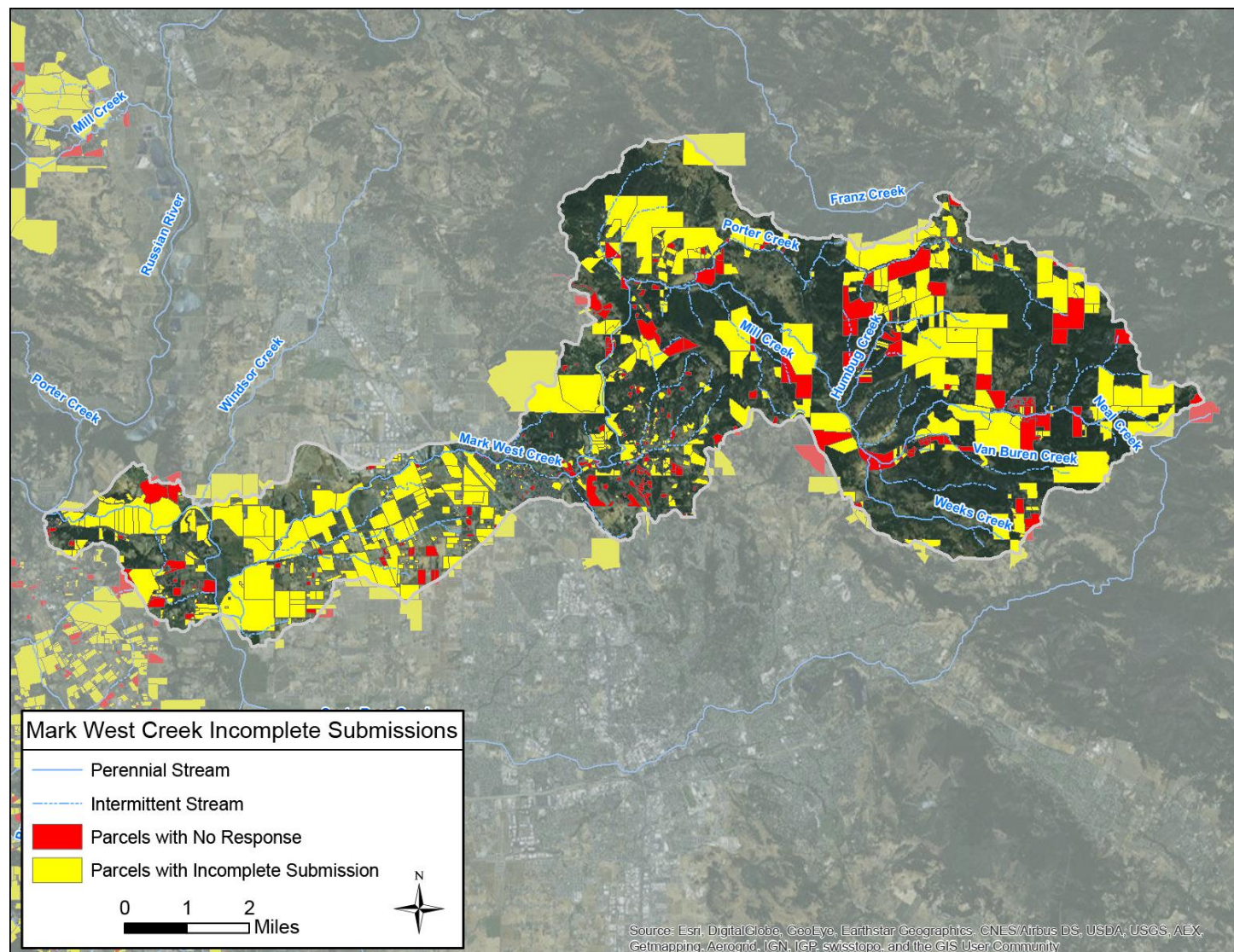


**Attachment 29: Green Valley Creek Watershed – Parcels with no Response or Incomplete Response**





### Attachment 30: Portions of Mark West Creek Watershed – Parcels with no Response or Incomplete Response





### Attachment 31: Mill Creek Watershed – Parcels with no Response or Incomplete Response

